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I GOING-TO-THE-SUN ROAD ADVISORY COMMITTEE

PURPOSE

The Glacier National Park Going-to-the-Sun Road Advisory Committee was authorized under the Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999, Public Law 105-277. Secretary of the Interior Bruce Babbitt appointed members to serve on the Going-to-the-Sun Road Advisory Committee for Glacier National Park on February 3, 2000 (Appendix A). The purpose of the Committee is to advise the National Park Service (NPS) in the development of alternatives for reconstruction of the Going-to-the-Sun Road in Glacier National Park, focusing on road condition and reconstruction strategies, including scheduling, cost and measures to mitigate impacts on visitors and local economies. These alternatives will then be analyzed in an environmental document that will provide the basis for the agency decision.

While it is not part of the specific purpose of the Going-to-the-Sun Road Advisory Committee to advise the National Park Service on how to conduct the National Environmental Protection Act (NEPA)/Environmental Impact Statement (EIS) process, the Committee has full confidence that the NPS will conduct the NEPA/EIS process in accordance with the law, and recognizes the Committee has no advisory role regarding the EIS.

The Going-to-the-Sun Road is the only through road across Glacier National Park via the Continental Divide at Logan Pass and is one of the most visited features in the park. The road is a National Historic Landmark, a National Civil Engineering Landmark, and is listed on the National Register of Historic Places in recognition of its significance as both an historic and cultural resource.

Much of the aging road is in serious need of rehabilitation to correct structural, drainage, and visitor safety problems. The NPS, in conjunction with the Federal Highways Administration, estimated that the road will require between 70 and 210 million dollars to rehabilitate (Final General Management Plan, Glacier National Park, pages 54 - 55). Between 1,700,000 and 2,000,000 visitors come to Glacier National Park annually. Approximately 80 percent of park visitors drive the road. The failing condition of the road, the heavy visitor use, and the impact of the road on local economies have generated significant public awareness to be informed and a desire to be involved with the road rehabilitation in a meaningful way.

ADVISORY COMMITTEE MEMBERS

Current Members

Randall S. Ogle	Representative-at-Large (Chairman)
Linda J. Anderson	Representative from recommendations of a State and/or National Tourism (Marketing) Organization
Brian R. Baker	From Canada. Representative from recommendations of the tourism and business communities of Southern Alberta, Canada
Roscoe W. Black	Representing local business within the multiple county area immediately east of Glacier National Park
Susan D. Burch	Representing local business within the multiple county area immediately west of Glacier National Park
William J. Dakin	Representing local business within the multiple county area immediately west of Glacier National Park
David H. Jackson	Representing economic expertise of national reputation
Tony Jewett	Representative from recommendations of a National Environmental Organization
Jayne Kremenik	From Canada. Representative from recommendations of the tourism and business communities of Southern Alberta, Canada
Thomas R. McDonald	Representing interests of the Confederated Salish-Kootenai Tribes
Lowell W. Meznarich	Representative from local government within the area immediately east of Glacier National Park
Anna Marie Moe	Representing State of Montana
Byron J. O'Quinn	Representing engineering expertise of national reputation
Barbara Pahl	Representative from recommendations of a National Historic Preservation Organization
Joni Lyon Stewart	Representing local business within the multiple county area immediately east of Glacier National Park
Donald White	Representing interests of the Blackfeet Nation
Suzanne Lewis	Designated Federal Official (Superintendent, Glacier National Park)

Former Members

William Brooke	Representing local business within the multiple county area immediately east of Glacier National Park
Mary Sexton	Representing local business within the multiple county area immediately east of Glacier National Park
Paul Sliter	Representing local government within the area immediately west of Glacier National Park

SUMMARY OF MEETINGS

February 29 – March 2, 2000, Kalispell, Montana

At the first meeting, the Committee received background material on the history and construction of the road, current issues and challenges. Washington Infrastructure Services (MK Centennial), of Denver, Colorado, was introduced as the consultants contracted by the NPS to provide technical expertise.

The Committee unanimously advised the NPS to immediately initiate the appropriate compliance process as required under the National Environmental Policy Act (NEPA) and asked the NPS to report back to the Committee with the steps and commensurate costs that process would entail. They also recommended that the NPS and Washington Infrastructure Services develop a web site for broad, widespread public information on its efforts and to provide a news clipping service.

Additional results of the meeting included review and comment on a draft project agreement. The agreement identified issues and set the scope and parameters for the development of an engineering study, socioeconomic analysis, and transportation/visitor use study by Washington Infrastructure Services. The Committee decided to use the term "rehabilitation" even though the Committees Charter wording is "reconstruction" (i.e., the Going-to-the-Sun Road is a National Historic Landmark that is being rehabilitated to preserve its historic character and significant features). Sub-committees would also be established to address specific items.

The Committee advised Washington Infrastructure Services to review and analyze all existing reports, studies, and data on the Going-to-the-Sun Road from both an engineering and socioeconomic standpoint.

September 25 –26, 2000, West Glacier, Montana

At the second meeting, the Committee participated in a field reconnaissance of the Going-to-the-Sun Road and received progress reports on the engineering study, socioeconomic analysis, cultural landscape report, and transportation/visitor use study.

The Committee decided to actively support the NPS in its efforts to seek funding for the Environmental Impact Statement and public participation in the NEPA process by preparing correspondence to the Congressional delegations, Director of the NPS and the NPS Intermountain Regional Director.

The Committee unanimously advised the National Park Service to provide a monthly project status report to Committee Members that would better inform them of the progress on the studies. The Committee also requested that a survey of potential visitors (those not having

traveled to Glacier National Park) be completed.

A motion was made, seconded, and unanimously passed, that recommended that the NPS get a legal opinion, regarding the Agreement of 1888 and 1896 on preferential hiring of Native Americans by contractors working on the Going-to-the-Sun Road (Appendix B).

Four subcommittees were established in the areas of engineering, socioeconomic, transportation/visitor use and public participation.

September 19-21, 2001, East Glacier, Montana

The Committee prepared a draft advice document (Appendix K) on the rehabilitation of the Going-to-the-Sun Road for the National Park Service and public review and comment. Members focused their discussion on the five alternatives for the Going-to-the-Sun Road rehabilitation based upon the engineering and socioeconomic studies prepared by Washington Infrastructure Services. The Committee modified the alternatives and developed draft advice.

At this meeting, the Committee did not endorse any particular alternative. Based upon information gleaned through the Committee process and taking into consideration public comments to date, the Committee would at the November meeting review public comments on the draft document and finalize their advice to the National Park Service.

November 15, 2001, Whitefish, Montana

The Going-to-the-Sun Road Advisory Committee concluded that the purpose of the Committee is to provide advice to the National Park Service in the development of alternatives for the reconstruction of the Going-to-the-Sun Road in Glacier National Park. The alternatives that were forwarded by the Committee will be analyzed in the Environmental Impact Statement that will provide the basis for the National Park Service decision on the Going-to-the-Sun Road rehabilitation.

At the November meeting, the Chairman briefed the Committee on recent Congressional visits and the Committee received presentations by Washington Infrastructure Services concerning additional information requested at the September 2001 meeting on engineering and socioeconomic data.

The Committee discussed the five road rehabilitation alternatives and recommended a preferred "Shared Use" approach to rehabiliate the historic Going-to-the-Sun Road. The Shared Use approach could employ an extended construction season to accomplish critical work. The Committee believed that this approach provides acceptable visitor use and effective construction access to the road at a reasonable cost to the public. The meeting concluded with the preparation and concurrence of the Committee's Final Report.

II GOING-TO-THE-SUN ROAD REHABILITATION STUDIES

DOCUMENTS

The following documents were distributed to the Committee for their use in formulating road rehabilitation alternatives and mitigation strategies.

Bioeconomics, Inc. Estimated Economic Impacts of the Going-to-the-Sun Road Closure and Reconstruction, November, 1997.

Coley/Forrest, Inc. National Park Service, Glacier National Park Going-to-the-Sun Road Visitor Survey, August 2001.

Going-to-the-Sun Road Advisory Committee. Committee Recommendations from Going-to-the-Sun Road Committee Meetings dated March 2, 2000, September 25, 2000, and September 21, 2001.

Going-to-the-Sun Road Advisory Committee. Going-to-the-Sun Road Advisory Committee Charter, February 3, 2000.

Goodman Reporting. Transcripts from Going-to-the-Sun Road Advisory Committee Meetings dated February 29-March 2, 2000, September 25-26, 2000, and September 19-21, 2001.

MK Centennial. Briefing Paper on Engineering Study. September 2000.

MK Centennial. Briefing Paper on Socioeconomic Tasks. September 2000.

MK Centennial. Briefing Paper on Transportation/Visitor Use Study. September 2000.

MK Centennial. Draft Going-to-the-Sun Road Engineering Study. May 2001.

MK Centennial. Draft Going-to-the-Sun Road Socioeconomic Report. May 2001.

MK Centennial. Draft Going-to-the-Sun Road Transportation and Visitor Use Plan. May 2001.

MK Centennial. Draft Overview of the Going-to-the-Sun Road Engineering Report, Socioeconomic Study and Transportation and Visitor Use Plan. May 2001.

MK Centennial. Findings and Recommendations Based on the Review of Information Relating to Going-to-the-Sun Road Rehabilitation/Reconstruction. June 2000.

MK Centennial. Going-to-the-Sun Road Condition Assessment Field Reconnaissance Report. October 2000.

MK Centennial. Summary of Going-to-the-Sun Road Condition Assessment. November 2000.

Nickerson, Norma, Ph.D. and Nickerson, Ross. *Economic Impacts of Going-to-the-Sun Road Reconstruction: Montana and "Glacier Area" Impacts.* Institute for Tourism and Recreation Research, School of Forestry, The University of Montana. June 1998.

Peccia & Assoc. Vehicle Movement and Traffic Study, Glacier National Park. December 1997.

Project Agreement for the Going-to-the-Sun Road Reconstruction. June 2000.

Renewable Technologies, Inc. Going-to-the-Sun Road Draft Cultural Landscape Report, Parts I & II. August 2001.

Solicitor's opinion regarding the preferential hiring rights in connection with Native Americans and the Going-to-the-Sun Road. January 2001.

Washington Infrastructure Services. Final Going-to-the-Sun Road 2001 Survey of Business. August 2001.

Washington Infrastructure Services. Final Going-to-the-Sun Road Engineering Study. August 2001.

Washington Infrastructure Services. Final Going-to-the-Sun Road Socioeconomic Study. August 2001.

Washington Infrastructure Services. Final Going-to-the-Sun Road Transportation and Visitor Use Study. August 2001.

Washington Infrastructure Services. Final Overview of the Going-to-the-Sun Road Engineering Study, Socioeconomic Study and Transportation and Visitor Use Study. August 2001.

III COMMITTEE REPORT

GOING-TO-THE-SUN ROAD ADVISORY COMMITTEE REPORT

At this time and with the information available to us, the Committee prefers a Shared Use approach to rehabilitate the historic Going-to-the-Sun Road. A Shared Use approach may employ an extended construction season to accomplish critical work. We believe this approach provides acceptable visitor use and effective construction access to the Going-to-the-Sun Road at a reasonable cost to the public.

GOING-TO-THE SUN ROAD REHABILITATION ALTERNATIVES

The Going-to-the-Sun Road Engineering Study presents five alternatives for rehabilitating the Going-to-the-Sun Road. These alternatives represent a range of costs and construction schedules from which to rehabilitate the road considering the engineering needs; historic, cultural, and environmental factors; preservation of natural resources; and visitor impact. The engineering concepts are based on treatments that provide for preservation and rehabilitation of the contributing elements of the road; traffic control methods that provide for moderate impacts on visitors; and engineering actions that would require a low to moderate level of long-term road maintenance.

The Committee reviewed and discussed the alternatives and the socioeconomic analysis and mitigation strategies associated with the alternatives. This chapter summarizes the five Going-to-the-Sun Road rehabilitation alternatives (Executive Summary, Engineering Study, pages ii – vi – See Appendix C) developed by Washington Infrastructure Services and the modifications made by the Committee.

The following Comprehensive Cost chart includes the escalated road rehabilitation costs, visitor use improvements and transit system costs.

Comprehensive Cost Summary

Alternative	Construction Duration	Rehabilitation 4% Escalation	Visitor Use	Transit System	Total Cost 4% Escalation
Repair as Needed	Approx. 50 yrs.	$328 - $394	N/A	N/A	$328 - $394
Priority Rehabilitations	Approx. 20 yrs.	$144 - $173	$10	N/A	$154 - $183
Comprehensive Shared Use	8 - 9 years	$105 - $126	$10	$11	$126 - $147
Extended Rehabilitation Season	7 - 8 years	$112 - $135	$10	$10	$132 - $155
Road Segment Closure	6 - 8 years	$88 - $106	$10	$9	$107 - $125

- The costs do not include the St. Mary Visitor Center rehabilitation, a new Discovery Center at Apgar, or the Intelegent Transportation System (fiber optics for operations, maintenance, and visitor use).
- An annual preventative operations and maintenance program for the Going-to-the-Sun Road would cost between $1,500,000 and $1,900,000 per year in addition to the costs listed above.
- Escalation costs were increased from 3% to 4% to match the NPS standard per year escalation factor.

No-Action Alternative

While the Environmental Impact Statement process requires the NPS to put forth a No Action Alternative, the Committee believes Glacier National Park personnel are in the best position to describe the No Action Alterative and the Committee does not recommend that the No Action Alternative be adopted by the National Park Service.

Alternative 1 - Repair as Needed

Figure 111: Summary of Alternative 1
Repair As Needed

* Traffic control requirements, and consequently, traffic delays,are dictated by the problem and repairs needed.

Rehabilitation Cost Estimate (2001 dollars) ……$97.7 to $117.2 million

Rehabilitation Duration……Approximately 50 years

Rehabilitation Cost (4% escalation per year)……$328 to $394 million

The Repair as Needed alternative provides for basic operations and maintenance of the road with $2 million per year funding for rehabilitation efforts. Repairs are made without substantial pre-planning or design, based on the needs and priorities of the road. Little opportunity exists for assuring that the historical, cultural, long-term maintenance, environmental, and visitor impacts are considered or mitigated. Work occurs on the road when the road is open to visitors. This alternative has the highest cost and duration, the most potential for major failures, significant delays, and unplanned road closures. (Engineering Study, Executive Summary, pg. ii – See Appendix C)

The Committee recommends the following for Alternative 1:

The Repair as Needed alternative was examined and dismissed by the Committee because it did not adequately address the needs of the road and because it is less than what the National Park Service is doing now.

Figure 112: Summary of Alternative 2
Priority Rehabilitations

* Current traffic control guidelines could be used which limit visitor delays to fifteen minutes at each construction site, with a maximum of two sites, one on each side of Logan Pass. Two-hour delays are allowed at night three days per week, and two Friday afternoons in October.

Alternative 2 - Priority Rehabilitations

Rehabilitation Cost Estimate (2001 dollars) ……$89.5 to $107.4 million

Rehabilitation Duration……Approximately 20 years

Rehabilitation Cost (4% escalation per year)……$144 to $173 million

The Priority Rehabilitations alternative provides for rehabilitation with $5 million per year funding and includes planning and design in concert with the historical, cultural, environmental, socioeconomic and long-term maintenance considerations. Visitor impact has a better opportunity to be mitigated as the work is planned and includes integrated traffic and visitor management in accordance with the current park's practices. Work occurs on the road when the road is open to visitors. Even though this alternative has a plan for rehabilitation, there is still a significant potential for major failures, delays and road closures. (Engineering Study, Executive Summary, pg. iii – See Appendix C)

The Committee recommends the following for Alternative 2:

- Alternative 2 "Priority Rehabilitations" was examined and the Committee felt it was inadequate to meet the needs of the road.

Alternative 3 - Comprehensive Shared Use

Figure 113: Summary of Alternative 3
Comprehensive Shared Use

* Five-minute delays, 10 a.m. to 2 p.m. Monday-Thursday, 10 a.m. Friday to 7 p.m. Sunday
* Five-minute delays on holidays, and from 10 a.m. to Midnight on the day preceding a holiday
* 30-minute delays, 7 a.m. to 10 a.m. and 2 p.m. to 7 p.m. Monday-Thursday
* Delays of four hours or less, 7 p.m. to 7 a.m. Monday-Thursday
* Approximately 20 work days requiring closure of the Road in September and October of each year

Rehabilitation Cost Estimate (2001 dollars)	$81.4 to $97.7 million
Rehabilitation Duration	8 to 9 years
Rehabilitation Cost (4% escalation per year)	$105 to $126 million

The Comprehensive Shared Use alternative balances the needs for the rehabilitation with visitor use, and incorporates the engineering, historical, cultural, environmental, socioeconomic and long-term maintenance considerations. Work proceeds on the road while the road is open to visitors; however, rehabilitation work that requires significant visitor delays is performed during times of low visitor use. A tremendous opportunity exists for overall effective scheduling and cost effectiveness in using this alternative. (Engineering Study, Executive Summary, pg. iv – See Appendix C)

The Committee recommends the following for Alternative 3:

- Combine the Comprehensive Shared Use Alternative 3 with the Extended Rehabilitation Seasons Alternative 4 because their only difference lies in scheduling. Include it as an alternative in the environmental document.
- Rename alternative to read "Comprehensive Shared Use with Extended Construction Seasons."

Alternative 4 - Extended Rehabilitation Season

Figure 114: Summary of Alternative 4
Extended Rehabilitation Season

* Road open to visitors July 1 to October 1
* Five-minute delays, 10 a.m. to 2 p.m. Monday-Thursday, 10 a.m. Friday to 7 p.m. Sunday
* Five-minute delays on holidays, from 10 a.m. to Midnight on the day preceding a holiday
* 30-minute delays, 7 a.m. to 10 a.m. and 2 p.m. to 7 p.m. Mon-Thu
* Delays of four hours or less, 7 p.m. to 7 a.m. Mon-Thu
* Approximately 10 work days requiring closure of the Road in September

Rehabilitation Cost Estimate (2001 dollars) ……$90.2 - $108.2 million

Rehabilitation Duration……7 to 8 years

Rehabilitation Cost (4% escalation per year)……$112 to $135 million

The Extended Rehabilitation Season alternative uses the same concepts as the Comprehensive Shared Use Alternative, however the road is only open to visitors between July 1 and October 1 of each year. By allowing work to proceed unimpeded outside these dates, the schedule of the rehabilitation is reduced by approximately one year. This alterative comes with a high cost, as access and weather conditions could reduce overall productivity considerably. (Engineering Study, Executive Summary, pg. iv - See Appendix C)

The Committee recommends the following for Alternative 4:

- Combine the Comprehensive Shared Use Alternative 3 with the Extended Rehabilitation Seasons Alternative 4 because their only difference lies in scheduling. Include it as an alternative in the environmental document.
- Rename alternative to read "Comprehensive Shared Use with Extended Construction Seasons."
- Improve this alternative by:
  - Making cost estimates more comprehensive (Completed, see chart on page 8).
  - Addressing seasonal opening and closing periods so that they more closely reflect actual visitor traffic patterns and current Going-to-the-Sun opening and closing dates.
  - Utilizing current, real-time visitor use data and adjusting traffic management hours so that most delays are in the lowest traffic/use period.

- Adjusting segment closures to achieve optimum engineering efficiencies (i.e., continuous days of closure versus scattered days).
- Adjusting segment closures to mitigate impacts on visitors and the local economy.
- Adjusting the 3% escalation factor and explain rationale.
- Maximizing night work within safety constraints.
- Explore the feasibility of utilizing shuttle systems.
- Establishing a substitute word for "closure" and clearly define its meaning; be consistent in its use in all alternatives.
- Clearly explain the floating four-hour closure strategy and rationale. Clarify that it will occur between 7 p.m. and 7 a.m.

Alternative 5 - Road Segment Closures

Figure 115: Summary of Alternative 5
Road Segment Closures

* Segments of the Road closed from 7 p.m. Sunday to 10 a.m. Friday
* No delays from 10 a.m. Friday to 7 p.m. Sundays and holidays

Rehabilitation Cost Estimate (2001 dollars)	$72.2 - $83.8 million
Rehabilitation Duration	6 to 8 years
Rehabilitation Cost (4% escalation per year)	$88 to $106 million

The Road Segment Closure alternative brings forth all of the considerations in the rehabilitation and allows work to proceed on the road while segments of the road are closed from 7 p.m. Sunday to 10 a.m. Friday throughout the visitor season. Traffic is unimpeded on the weekends and holidays. This alternative provides a cost and schedule effective means for rehabilitating the road, except for the visitor impact. (Engineering Study, Executive Summary, pg. v – vi – See Appendix C)

The Committee recommends the following for Alternative 5:

- Rename alternative to read "Accelerated Completion Through Isolated Road Segment Suspensions (Closures)". This alternative was examined by the committee but not preferred.
- Include the Accelerated Completion Through Isolated Road Segment Suspension approach as an alternative in the environmental document. It may be appealing to funders and could result in a shorter time period for project completion.
- Improve this alternative by:
  - Better defining and clarifying "segment closure."
  - Assure continued access to Logan Pass on at least one side.
  - Explain the amount of available road access at any point in time.
  - Design closure strategies to optimize construction efficiencies.
  - Explore opportunities to travel to the closed section from the open side, if the closed side is not fully closed.
  - Explain the potential impacts of maximum closure.
- Explore the costs and benefits of closing one side at a time.

- Explore the costs and benefits of a segment closure on one side of Logan Pass and traffic management restrictions (i.e. traffic delays) on the other portions of the road. For example, a segment closure could occur from the Loop to Big Bend. The other segments of the road could remain open from St. Mary to Big Bend from the East and from West Glacier to the Loop on the West.

ELEMENTS COMMON TO ALL ALTERNATIVES

The Committee recommends that the following elements be included in every alternative (that is to be further studied in the Going-to-the-Sun Road Rehabilitation Plan/Environmental Impact Statement):

- The ability to develop a construction package that does not exceed threshold visitor waiting periods.
- Predictable public experience.
- Public information/communication strategies and tools that are credible and consistent.
- Traffic management strategies that include flaggers that are skilled in communications.
- A maintenance and operation plan.
- Visitor development strategies including interpretive possibilities.
- Visitor support strategies and potential impacts on visitor experience.
- Examination of possible uses of one-way traffic.
- Examination of possible uses of shuttle systems.
- Cost and time factors.
- Safety considerations.
- Historic retention.
- Non-impairment of natural values.
- Potential social and economic impacts.
- Expanding cost estimates to include maintenance and operations; a structured communication plan; visitor development strategies and visitor support facilities (e.g., pullouts, parking, interpretive facilities, restrooms).
- Front-loading maintenance costs to prevent further deterioration.
- Utilizing current real time visitor use data and adjusting traffic management hours so that most delays are in the lowest traffic use period.
- Include 10-year maintenance program costs in overall project costs.
- Establish a permanent "maintenance endowment fund" separate from Glacier National Park's budget that would be used exclusively for road maintenance. It is hoped that income from the fund would be used starting in year eleven.

PROPOSED ACTIONS

In addition to the Committee's specific recommendations on the Going-to-the Sun Road rehabilitation alternatives, the following engineering and visitor use actions are recommended for inclusion in the Environmental Impact Statement. The Committee reviewed the prioritized Rehabilitation Needs by Road Segment, Figure 30, page 38 of the Engineering Study (Appendix D) and recommended the following:

ENGINEERING ACTIONS

The Engineering Study divided the Going-to-the-Sun Road into five segments and prioritized the rehabilitation needs in each of the segments. The priority for each need was assigned a 1 through 5 rating (with 1 being the highest priority).

DRAINAGE

- The Committee accepts the rankings related to drainage found in Figure 30, page 38 of the Engineering Study (see Appendix D)

Additional Advice Related to Drainage

- Recognize that drainage is the foundation of road permanency. As drainage goes so goes the road.
- Recognize that core sampling is an essential next step to confirm rankings.

Advice Related to Operation & Maintenance

- Build drainage systems to what is appropriate for the specific site and design maintenance strategies to highest possible standards (rather than stop at "prudent").

GUARDWALLS

- The Committee accepts the rankings related to guardwalls found in Figure 30, page 38 of the Engineering Study (see Appendix D). We believe that the alpine section includes walls that are the most deteriorated and in need of repair. We also affirm that the least severe problem area is at St. Mary, which is ranked lowest priority.

Additional Advice Related to Guardwalls

- Repair existing historical walls with compatible stone.
- Collect and salvage stone along the road and stone that has fallen off the road.
- Use rock retrieved from scaling.

- Explore opportunities to obtain building materials from the Blackfeet and Flathead Nations.
- In areas where the historic wall is gone, restore to the appearance of what was there historically using modern technologies.
- Bring road surface down to restore 18 inches to historic wall rather than building up the wall where possible.

Advice Related to Operation & Maintenance

- Provide regular, continual maintenance to assure public safety and resource protection.
- Write and implement a manual of maintenance procedures, especially snow plowing, which includes seasonal and annual inspection and evaluation of maintenance-related impacts on road features.
- Provide training opportunities for Tribal members and others as stone masons.

ROAD PAVEMENT

- The Committee accepts the rankings related to road pavement found in Figure 30, page 38 of the Engineering Study (see Appendix D).

Additional Advice Related to Road Pavement

- Restore a more suitable pavement width to accommodate oversize vehicles in those areas that are not subject to vehicle size restrictions.
- Clearly distinguish priority designations between Lake McDonald and St. Mary Road segments and if that distinction is not clear, then attribute equal priority to both segments (e.g., ranking of 4 for both).

Advice Related to Operation & Maintenance

- Include and incorporate the cultural landscape report information relating to historic maintenance practice in the Engineering Study.
- Develop an improved Operations & Maintenance Plan and develop strategies that ensure future maintenance and operations funds to be spent specifically for "on the ground" road maintenance and not for overhead**.** Provide training opportunities for Tribal members or others.

SLOPE STABILITY

- The Committee accepts the rankings related to slope stability found in Figure 30, page 38 of the Engineering Study (see Appendix D).

Additional Advice Related to Slope Stability

- Complete the most critical elements first.
- Recognize safety as a major concern (i.e., overhead scaling).
- Increase capital costs when justified by reducing failure maintenance costs.
- Don't concentrate on the alpine section at the exclusion of other road segments. (The Committee recognizes that the alpine section will be the most expensive to fix.)
- Consider all items in balance (i.e., slope stability cannot be addressed without discussing drainage etc.).
- The Committee does not think that "native" rock collection and additional pull-off creation is a sufficient reason to remove rock overhangs, which contribute to the historical and aesthetic experience of the road.

RETAINING WALLS, ARCHES, AND TUNNELS

The Committee accepts the rankings related to retaining walls, arches, and tunnels found in Figure 30, page 38 of the Engineering Study (see Appendix D).

Additional Advice Related to Retaining Walls, Arches, and Tunnels

- Rehabilitate retaining walls, arches and tunnels per recommendations on pages 90-96 (Appendix E) of Engineering Study.
- Address the 5 priority walls found on page 51 in the Engineering Study immediately as defined in the Condition Assessment in the Engineering Study (see Appendix F).
- Complete retaining walls, arches, and tunnels before other roadwork (i.e., paving, etc.).
- Restore historic character as practical (native materials).
- Rehabilitate drainage and slope stability as recommended on pages 78 – 89 in the Engineering Study (see Appendix G).
- Include 10-year maintenance program costs in overall project costs.
- Establish a permanent "maintenance endowment fund" separate from Glacier National Park's budget that would be used exclusively for road maintenance. It is hoped that income from the fund would be used starting in year eleven.

VISITOR DEVELOPMENT STRATEGIES

The Survey of Businesses asked respondents to provide proposed mitigation strategies. Question 14 in the Survey of Businesses asked the respondents to provide any other comments regarding the Going-to-the-Sun Road rehabilitation and its potential impact on the local economy. The Committee reviewed the information contained on Table 1, page 7 and Table 4, page 26 of the 2001 Survey of Businesses (Appendix H and I) and recommend the following:

Critical Social/Economic Challenges/Issues

- Wrong or negative marketing messaging or communications regarding the park and/or road.
- Inadequate visitor/public transportation systems.
- Lack of real-time and variety of information on the road events, activities in the park and/or surrounding communities.
- Reduced or flat visitation during and after construction.
- Potential loss of income for local business.
- Negative visitor perception of Glacier National Park being closed.
- Decrease in level of visitor experience and enjoyment.
- Not visitor friendly (i.e., unclear signs; lack of difficulty rating for trails).
- Potential economic effects on rest of Montana, the Inland West, and Southwest Alberta, Canada.
- Potential reduced visitation resulting in loss income, loss of employment, and loss of opportunities for NPS to educate visitors.
- Image problems including stewardship image tarnished by perceptions related to short long, and post-term road construction.

Additional Visitor Development Ideas

- In order to absorb and mitigate impacts from road rehabilitation, implement a sustained campaign to increase new visitation from "front country" opportunities that are congruent with interpretive and recreational goals of Glacier National Park and the General Management Plan. Timeline – A.S.A.P.
- Develop a "See America First" concept in marketing and partner with Amtrak.
- Use a national spokesperson in marketing efforts (e.g., Stephen Ambrose).
- Build on opportunities that renewed commitment to Going-to-the-Sun Road presents (e.g., stone masons and other skilled trade training in local schools).
- During and after rehabilitation, develop/encourage local suppliers.
- Articulate through marketing and product development that there is more to Glacier than the road (i.e., loop routes, visitor centers, other areas, hospitality training etc.).

- Add Glacier's 2010 Centennial celebration to events in number 5 found in Table 6, page 133 of the Socioeconomic Study (see Appendix J).
- Support efforts underway by the Blackfeet Nation to create a scenic byway for Highway 49.
- Explore the creation of additional touring/visitor experiences (i.e. information/orientation, interpretation, recreation and visitor services) along Highway 49, 89, 17 and 2.
- Get final determination from the Federal Highway Administration as to their earlier announcement that rehabilitation on the road would not be occurring during the Lewis and Clark Bicentennial.
- Increase participation and awareness of Waterton-Glacier International Peace Park heritage tourism strategy.

SPECIFIC VISITOR DEVELOPMENT STRATEGIES

The Socioeconomic Study lists fifteen priority visitor development actions that emerged from the second series of business meetings with local economic and tourism development representatives. The Committee reviewed the list of Priority Visitor Development Actions found in Table 6, page 133 of the Socioeconomic Study (Appendix J) and recommended the following strategies:

Upgrade Public Transportation to and through the Park.

- Encourage/reduce red tape/revisit existing regulations regarding connections with operators outside the park who wish to provide supplementary services.
- Develop a sound plan with lots of conversation facilitated by the National Park Service.
- Timeline – start now and keep thinking.

Local Transportation Coordination.

- Recognizing local jurisdiction, facilitate and coordinate dialogue among Glacier National Park, the Montana Department of Transportation, and Tribal governments.
- Promote discussion with Glacier Action Involvement Now (GAIN) and Burlington Northern Environmental Stewardship Area (BNESA).

Upgrade and Construct Outside Amphitheater.

- Build outside park boundaries through private, non-profit, and Tribal efforts.
- Unable to establish a timeline.

Upgrade Historic Hotels.

- Upgrade hotels working in partnership with Glacier Park, Inc.; winterizing is outside the current direction of the General Management Plan.
- Ongoing.

Use Lewis and Clark Bicentennial Events to Introduce Visitors Activities other than Travel on the Road.

- Take advantage of the Lewis and Clark Bicentennial planned for 2003–2006 and in Montana in 2005 and 2006 working through Lewis and Clark Bicentennial Commission, Glacier Country/Travel Montana.
- Build up to Glacier's 2010 Bicentennial through Lewis and Clark activities.

Improve Hyperlinks and Websites.

- Improve through private nonprofit, Tribal and tourism groups.
- Within 18 months.

Change Visitor Prospect Information to Introduce Sites other than the Road.

- Provide visitor orientation away from the road, focusing on other areas of the park within the direction of Glacier's General Management Plan.
- Collaboration with Travel Montana and Glacier Country and other tourism entities.
- Market Glacier proactively (i.e., Heritage Tourism initiatives).
- Start now/ongoing.

Develop Information and Add National Park Service Staff to Improve Visitor the Experience Who are Stopped by Rehabilitation of the Road.

- Develop a plan for improving the experience of visitors stopped by rehabilitation efforts (i.e., bear cookies, website, visitor center, information while stopped).

Public Information Program.

- Should be expanded and well planned through the National Park Service in cooperation with nonprofit, Tribal, and private entities.
- No near term timeline.

Work With and Inform the Media More Effectively.

- Provide the local, national, and international media with good and accurate information.
- Start now.

Improve Awareness of Events and Expand Opportunities to Learn More about Native American Heritage.

- Improve awareness of heritage tours being conducted by the Blackfeet and Flathead Nations.

Visitor Center Facilities

- Endorse construction of West Side Visitor Center as called for in the General Management Plan.
- Improve the East Side Visitor Center as called for in the GMP.

- No near term timeline.

Promote Glacier National Park Opportunities beyond Going-to-the-Sun Road.

- Refocus attention, interpretation, and education on additional areas through National Park Service efforts within the direction of the General Management Plan.
- Start now.

Continue Improving Customer Service through Hospitality Training.

- Encourage the use of and attendance at customer service training such as the state's Super Host Program.
- Assure that the National Park Service Ambassador Program is used effectively in Glacier National Park.

Improve Cooperation among Economic Development Organizations.

- Glacier Country should lead the effort in cooperation with other economic development organizations.
- Within 18 months.

The Advisory Committee would also like the National Park Service to consider the following:

- Emphasize the road is "open" and never closed.
- Stress that the road should be rehabilitated because of its national significance and that it is "in need of repair, but not past repair."
- Request funding (e.g., part of NEPA funds) for up-front public relations campaign. Correctly communicate to the public how the road is going to be rehabilitated.
- Encourage the NPS to actively work with public, commercial, private, non-profit, and Tribal organizations to create a proactive public information and marketing program to offset the negative effects of road rehabilitation. Consideration should be given to retaining a public relations firm.
- Consider extending the advisory committee role past existing mandate; (i.e., consider establishing an ad hoc steering committee for the EIS).
- Ensure that the socioeconomic data and road rehabilitation estimations regarding durations and costs are accurate.
- Emphasize operations and maintenance as part of the Going-to-the-Sun Road rehabilitation alternatives.
- Aggressively explore the use of a shuttle or transit system during the rehabilitation.
- Recognize that more data and information may come out of the EIS process that could modify the current alternatives and the Committee's preferred Shared Use approach.
- Emphasize the use of the term "rehabilitation" even though the Charter wording is "reconstruction" (i.e., The Going-to-the-Sun Road is a National Historic Landmark that is being rehabilitated to preserve its historic character and significant features).
- Forward for consideration in the EIS process: Alternative 2 "Priority Rehabilitations", a combination of Alternative 3 "Comprehensive Shared Use" and Alternative 4 "Extended Rehabilitation Season", and Alternative 5 "Road Segment Closure". Alternative 1 "Repair as Needed" was dismissed because it did not adequately address the needs of the road and because it is less than what the National Park Service is doing now. Although submitted for further National Park Service consideration, the Committee felt Alternative 2 "Priority Rehabilitations" was examined and the Committee felt it was inadequate to meet the needs of the road.

IV CONCURRENCE

SIGNATURES

We, the undersigned, forward the advice and recommendations contained in this document on the rehabilitation of the Going-to-the-Sun Road to the National Park Service signed this day, November 15, 2001.

Randall S. Ogle (Chairman)

Linda J. Anderson

Brian R. Baker

Roscoe W. Black

Susan D. Burch

William J. Dakin

David H. Jackson

Tony Jewett

Jayne Kremenik

Thomas R. McDonald

Lowell W. Meznarich

Anna Marie Moe

Byron J. O'Quinn

Barbara Pahl

Joni Lyon Stewart

Donald White

Suzanne Lewis
(Designated Federal Official)

V SUMMARY OF PUBLIC INVOLVEMENT

Summary of Public Involvement, Going-to-the-Sun Road Advisory Committee 2000-2001

FEBRUARY 29-MARCH 2, 2000. The first Advisory Committee Meeting was held in Kalispell, Montana and was open to the public. The public was invited to address the Committee each day from 4:30 to 5:00pm and three members of the public addressed the Committee. (See Appendix L)

NOVEMBER, 2000. The Going-to-the-Sun Road Rehabilitation Plan/EIS Newsletter was distributed to more than 6,500 addresses.

SEPTEMBER 25-27, 2000. The second Advisory Committee Meeting was held in West Glacier, Montana and was open to the public. The public was invited to address the Committee from 4:00 to 5:00pm each day and eleven members of the public addressed the Committee. (See Appendix L)

MAY 9, 2001. The Draft Going-to-the-Sun Road Engineering Report, Socioeconomic Analysis and Transportation Reports were released for 30-day public comment. Thirty-one letters were received from the public. (See Appendix L)

AUGUST, 2001. The Final Going-to-the-Sun Road Engineering Report, Socioeconomic Analysis and Transportation Reports were released for 30-day public comment. Two comments were received. (See Appendix L)

SEPTEMBER 19-21, 2001. The third Going-to-the-Sun Advisory Committee Meeting was held in East Glacier, Montana and was open to the public. The public was invited to address the Committee from 5:15 to 6:15pm on September 19 and from 11:30 to 12:30pm on September 20. Three members of the public addressed the Committee. (See Appendix L)

SEPTEMBER 25, 2001. The Advisory Committee released a "draft advice document" to the public for 30-day review and comment. Sixteen comments were received. (See Appendix L)

NOVEMBER 15, 2001. The final Meeting of the Going-to-the-Sun Road Advisory Committee was held in Whitefish, Montana and was open to the public. The public was invited to address the Committee from 8:30 to 9:00 am and five members of the public addressed the Committee. (See Appendix L)

ADVISORY COMMITTEE PRESENCE AT GOING-TO-THE-SUN ROAD REHABILITATION PLAN/EIS PUBLIC SCOPING MEETINGS

DECEMBER 4-7, 2000. The public scoping meetings for the Going-to-the-Sun Road Rehabilitation Plan/EIS were held in Browning, Kalispell, Great Falls, and Missoula, Montana as well as Lethbridge, Alberta, Canada. Approximately 244 people attended these meetings.

VI APPENDICES

APPENDIX A – GOING-TO-THE-SUN ROAD ADVISORY COMMITTEE CHARTER

Charter

1999 — 2001

GOING-TO-THE-SUN ROAD ADVISORY COMMITTEE

A. AUTHORITY AND DESIGNATION.

This is a Federal advisory committee established by authority of the Secretary of the Interior under Section 3 of Public Law 91-383 (16 U.S.C. 1a-2(c)). The official designation of the committee is the Going-to-the-Sun Road Advisory Committee (Committee).

B. PURPOSE.

The purpose of the Committee is to advise the National Park Service in the development of alternatives for reconstruction of the Going-to-the-Sun Road in Glacier National Park, focusing on road condition and reconstruction strategies, including scheduling, cost and measures to mitigate impacts on visitors and local economies. These alternatives will then be analyzed in an environmental document that will provide the basis for the agency decision.

C. DUTIES AND RESPONSIBILITIES.

The duties of the Committee are solely advisory, and are as stated in paragraph B above.

D. MEMBERSHIP.

1. The Committee is comprised of 17 members reflecting the various interests concerned with the Going-to-the-Sun Road. Members are appointed by the Secretary of the Interior as follows:

   a. One member representing the interests of the Blackfeet Tribe, as recommended by the Blackfeet Tribal Government;

   b. One member representing the interests of the Confederated Salish-Kootenai Tribes, as recommended by the Confederated Salish-Kootenai Tribal Government;

   c. One representative of local government within the area immediately east of Glacier National Park;

   d. One representative of local government within the area immediately west of Glacier National Park;

   e. One representative from recommendations of the Governor of Montana;

   f. Two representatives of local business within the multiple county area immediately east of Glacier National Park;

   g. Two representatives of local business within the multiple county area immediately west of Glacier National Park.

h. One representative from recommendations of a State and/or national tourism (marketing) organization;

i. One representative from recommendations of a national environmental organization;

j. One representative from recommendations of a national historic preservation organization;

k. One representative having engineering expertise of a national reputation;

l. One representative having economic expertise of a national reputation;

m. One representative, at large; and,

n. Two representatives from Canada, from recommendations of the tourism and business communities of Southern Alberta.

2. Members will be appointed for 4-year terms. If no new member is appointed on or prior to the expiration date of an incumbent's term, the incumbent member may continue to serve until the new appointment is made. Any vacancy on the Committee will be filled in the same manner in which the original appointment was made.

3. Any member who fails to attend two successive meetings of the Committee or who otherwise fails to substantively participate in the work of the Committee, may be removed from the Committee by the Secretary and a replacement named.

4. Members of the Committee serve without compensation. However, while away from their homes or regular places of business, members engaged in Committee business approved by the Designated Federal Official will be allowed travel expenses, including per diem in lieu of subsistence, in the same manner as persons employed intermittently in Government service under section 5703 of title 5 of the United States Code.

E. ADMINISTRATION.

1. CHARTER. The Committee is subject to the provisions of the Federal Advisory Committee Act (FACA), 5 U.S.C. Appendix (1994) and shall take no action unless the charter filing requirements of Sections 9 and 14(b) of the Act have been complied with. The Committee is subject to biennial review and will terminate 2 years from the date this charter is filed, unless, prior to that time, the charter is renewed in acordance with Section 14 of FACA.

2. DESIGNATED FEDERAL OFFICIAL. The Committee reports to the Regional Director, Intermountain Region, National Park Service, Denver Colorado. The Regional Director or a Federal employee designated by the Regional Director, will serve as the Designated Federal Official (DFO) for purposes of Section 10 of the Federal Advisory Committee Act to oversee the management of the Committee.

3. CHAIRPERSON. The Committee will select a Chairperson from among the membership.

4. SUPPORT AND COSTS. Support for the Committee is provided by the National Park Service. The estimated annual operating cost of the Committee is $97,000, which includes the cost of 1 work-year of staff support.

5. MEETINGS. It is expected that the Committee will meet approximately two times a year. All meetings will be subject to the provisions of the Federal Advisory Committee Act, and will be held at the call of or with the advance written approval of the Regional Director. Notice of meetings and agendas will be published in the *Federal Register* and in State and local newspapers having a distribution that generally covers the area affected by Glacier National Park. Committee meetings will be held at locations and in such manner as to ensure public access and involvement.

6. QUORUM. Ten members of the Committee will constitute a quorum. The Committee will act and advise by affirmative vote of a majority of the members voting at a meeting at which a quorum is present. Vacancies on the Committee will not affect its power to function, if there remain sufficient members to constitute a quorum. The Committee will seek to obtain consensus among the members. If consensus cannot be reached, a majority vote will determine the Committee position. The Committee will provide to the Designated Federal Official both the minority and majority opinions on issues that must be resolved by vote.

7. SUBCOMMITTEES. In carrying out its duties, the Committee may form subcommittees drawn in whole or in part from the full Committee, provided that the role of such committees will be merely to provide information and recommendations for consideration by the full Committee. Any such subcommittees will be chaired by a member of the full Committee. Membership on and meetings of subcommittees are subject to approval by the Designated Federal Official.

F. DURATION AND DATE OF TERMINATION.

The Committee will terminate once the National Park Service has made a final decision, or when funding is no longer available, whichever comes first. All appointments will terminate with the Committee.

Bruce Babbitt — SEP 28 1999

Secretary of the Interior — Date Signed

DATE CHARTER FILED FEB 3 2000

THE FILING DATE OF THIS FIRST CHARTER CONSTITUTES THE DATE OF ESTABLISHMENT OF THE GOING-TO-THE-SUN ROAD ADVISORY COMMITTEE.

APPENDIX B – SOLICITORS OPINION ON PREFERENTIAL HIRING RIGHTS CONNECTION WITH GOING-TO-THE-SUN ROAD

APPENDIX C – ROAD REHABILITATION ALTERNATIVES

Under the direction of the park and the Advisory Committee, this engineering study was prepared to identify, explore and develop alternatives for rehabilitating the Road. It details the criteria, considerations and alternatives necessary to access the best available technology to reduce costs and mitigate impacts.

Time is of the essence for addressing the critical needs of the Going-to-the-Sun Road. Current conditions dictate that now is the time to slow and stop the deterioration of the Road and safeguard its historical features. Rehabilitation efforts must be expedited in order to assure the integrity of this landmark Road.

Road Rehabilitation Alternatives

This engineering study presents five alternatives for rehabilitating the Going-to-the-Sun Road. These alternatives represent a range of costs and schedules from which to rehabilitate the Road considering the engineering aspects; historic, cultural, and environmental factors; preservation of natural resources; and visitor impact. Engineering concepts in these alternatives were based on the selection of the historical treatment that would provide for preservation and rehabilitation of the contributing elements of the Road; the traffic control method that would provide for a moderate impact on visitors; and a prudent life cycle that would require a low to moderate level of long-term maintenance.

Alternative 1: Repair as Needed

The Repair As Needed alternative provides for basic operations and maintenance of the Road with $2 million per year funding for rehabilitation efforts. Repairs are made without substantial pre-planning or design, based on the needs and priorities of the Road. Little opportunity exists for assuring that the historical, cultural, long-term maintenance, environmental, and visitor impacts are considered or mitigated. Work occurs on the Road when the Road is open to visitors. This alternative has the highest cost and duration, the most potential for major failures, significant delays, and unplanned road closures.

Summary of Alternative 1
Repair As Needed

Traffic control requirements, and consequently, traffic delays, are dictated by the problem and repairs needed

Rehabilitation Cost Estimate (2001 dollars) ..... $ 97.7 to $ 117.2 million

Rehabilitation Duration ..... Approximately 50 years

Rehabilitation Cost (3% escalation per year)..... $ 237 to $ 284 million

Alternative 2: Priority Rehabilitations

The Priority Rehabilitations alternative provides for rehabilitation with $5 million per year funding and includes planning and design in concert with the historical, cultural, environmental, socioeconomic, and long-term maintenance considerations. Visitor impact has a better opportunity to be mitigated as the work is planned and includes integrated traffic and visitor management in accordance with the current park's practice. Work occurs on the Road when the Road is open to visitors. Even though this alternative has a plan for rehabilitation, there is still a significant potential for major failures, delays and road closures.

Summary of Alternative 2
Priority Rehabilitations

Current traffic control guidelines could be used which limit visitor delays to fifteen minutes at each construction site, with a maximum of two sites, one on each side of Logan Pass. Two-hour delays are allowed at night three days per week, and two Friday afternoons in October.

Rehabilitation Cost Estimate (2001 dollars) ..... $ 89.5 to $ 107.4 million

Rehabilitation Duration ..... Approximately 20 years

Rehabilitation Cost (3% escalation per year) ..... $ 128 to $ 154 million

Alternative 3: Comprehensive Shared Use

The Comprehensive Shared Use alternative balances the needs of the rehabilitation with visitor use, and incorporates the engineering, historical, cultural, environmental, socioeconomic, and long-term maintenance considerations. Work proceeds on the Road while the Road is open to visitors; however, rehabilitation work that requires significant visitor delays is performed during times of low visitor use. A tremendous opportunity exists for overall effective scheduling and cost effectiveness in using this alternative.

Summary of Alternative 3
Comprehensive Shared Use

- *Five-minute delays, 10 a.m. to 2 p.m. Mon-Thu, 10 a.m. Friday to 7 p.m. Sun*
- *Five-minute delays on holidays, and from 10 a.m. to midnight on the day preceding a holiday*
- *30-minute delays, 7 a.m. to 10 a.m. and 2 p.m. to 7 p.m. Mon-Thu*
- *Delays of four hours or less, 7 p.m. to 7 a.m. Mon-Thu*
- *Approximately 20 work days requiring closure of the Road in September and October of each year*

Rehabilitation Cost Estimate (2001 dollars)	$ 81.4 to $ 97.7 million
Rehabilitation Duration	8 to 9 years
Rehabilitation Cost (3% escalation per year)	$ 98 to $ 118 million

Alternative 4: Extended Rehabilitation Season

The Extended Rehabilitation Season alternative uses the same concepts as the Comprehensive Shared Use alternative, however the Road is only open to visitors between July 1 and October 1 of each year. By allowing work to proceed unimpeded outside these dates, the schedule of the rehabilitation is reduced by approximately one year. This alternative comes with a high cost, as access and weather conditions could reduce overall productivity considerably.

Summary of Alternative 4
Extended Rehabilitation Season

- *Road open to visitors July 1 to October 1*
- *Five-minute delays, 10 a.m. to 2 p.m. Mon-Thu, 10 a.m. Friday to 7 p.m. Sun*
- *Five-minute delays on holidays, and from 10 a.m. to midnight on the day preceding a holiday*
- *30-minute delays, 7 a.m. to 10 a.m. and 2 p.m. to 7 p.m. Mon-Thu*
- *Delays of four hours or less, 7 p.m. to 7 a.m. Mon-Thu*
- *Approximately 10 work days requiring closure of the Road in September*

Rehabilitation Cost Estimate (2001 dollars) ..... $ 90.2 to $ 108.2 million

Rehabilitation Duration ..... 7 to 8 years

Rehabilitation Cost (3% escalation per year)..... $ 106 to $ 127 million

Alternative 5: Road Segment Closures

The Road Segment Closure alternative brings forth all of the considerations in the rehabilitation and allows work to proceed on the Road while segments of the Road are closed from 7 pm Sunday to 10 am Friday throughout the visitor season. Traffic is unimpeded on the weekends and holidays. This alternative provides a cost and schedule effective means for rehabilitating the Road, except for visitor impact.

Summary of Alternative 5
Road Segment Closures

- *Segments of the Road closed from 7 p.m. Sunday to 10 a.m. Friday*
- *No delays from 10 a.m. Friday to 7 p.m. Sundays and holidays*

Rehabilitation Cost Estimate (2001 dollars) .....$ 72.2 to $ 83.8 million

Rehabilitation Duration ..... 6 to 7 years

For comparative purposes only, if the Road were totally closed to visitors for the rehabilitation between Avalanche and Sun Point each year, the estimate for the rehabilitation would be in the range of $65 to $78 million in constant 2001 dollars ($75 to $90 million if escalated 3 % per year) and would take approximately 5 years. Due to the tremendous visitor, social, and economic impacts, a full closure of the Going-to-the-Sun Road may not be a viable alternative for the rehabilitation, and therefore was not included as a separate alternative.

Development of Rehabilitation Alternatives

The road rehabilitation alternatives are based upon the selection of conceptual engineering alternatives developed from field reconnaissance, analysis, discussions with park and FHWA personnel, and literature reviews. The engineering solutions were recommended by a multi-disciplinary team that included planners, engineers, and construction managers with extensive experience in roadway construction in environmentally sensitive mountain terrain with a tourist based economy. Concepts were reviewed with the historic and cultural specialist to assure historic preservation and rehabilitation of those elements considered as contributing to the historic significance to the Road.

The engineering study details the process for arriving at the concepts by investigating the conditions of the Road and determining what solutions could fit within the established criteria:

- Cost effectively restore the Going-to-the-Sun Road while preserving the historic character, fabric, width, and significance;
- Restore the Road to a quality condition;
- Minimize effects on natural, cultural, and scenic resources;
- Provide a world-class visitor experience; and
- Collaborate with others in exploring options that stimulate local and regional economic growth.

This study provides an overview of the conditions and engineering recommendations of drainage, slope stability, retaining walls, guardwalls, and roadway in *Chapter 1: Conditions Assessment*. *Chapter 2: Engineering Analysis and Site Recommendations* provides a summary of the conditions and recommendations of the Road by road sections and road segments. Appendix A provides the detail on maps and spreadsheets of the over 230 sites investigated, including deficiency, recommended

APPENDIX D – FIGURE 30: REHABILITATION NEEDS BY ROAD SEGMENT CHART

areas of rockfall hazard. Additional signing and visitor education should be implemented to enhance public awareness of rockfall hazards.

- ***Stone masonry retaining walls*** should be rehabilitated and repointed as necessary. The top three to eight feet of many walls should be reconstructed due to advanced deterioration.
- ***Maintenance of existing facilities*** including rock scaling, drainage refurbishment, and pavement crack sealing is considered a priority in order to protect the historical and structural features of the Road.
- ***Roadway and pavement rehabilitation*** is required for approximately one-half of the roadway and associated parking areas. These locations are primarily from MP 16 to MP 43. Selective repairs and enhanced maintenance activities are also recommended over the remainder of the Road.
- ***Guardwall rehabilitation*** will be required on approximately two-thirds of the stone masonry guardwalls. All guardwalls should be examined and repointed as necessary.

The overall priority of rehabilitation is specified by Road segment in the chart below (Figure 30). In this chart, each segment is listed along with each rehabilitation need. The priority for each rehabilitation need is expressed by assignment of a 1 through 5 rating, with 1 being the highest priority.

Figure 30: Rehabilitation Needs by Road Segment

Item	Lake McDonald MP 0.0-16.2	West Tunnel MP 16.2-23.4	Alpine MP 23.4-34.3	Baring Creek MP 34.2-43.2	St. Mary MP 43.2-49.7
Drainage	5	2	1	4	3
Slope Stability	5	3	1	2	4
Retaining walls, arches, and tunnels	4	2	1	3	5
Guardwalls	4	2	1	3	5
Roadway pavement	4	2	1	3	5

APPENDIX E – RETAINING WALL CONSIDERATIONS AND ALTERNATIVES

Retaining Wall Considerations and Alternatives

The stone masonry retaining walls are of considerable historic significance, and will require rehabilitation to as near their original condition as feasible. The FHWA has conducted a thorough inventory and review of these structures, and documented evidence regarding deficiencies noted and recommended rehabilitation strategies. The FHWA has established a priority listing of wall sites and has completed preliminary and final designs for many of the necessary repairs. The FHWA submitted a report to the park in 1998, which it updated in 2000. The report was reviewed and the information and recommendations found therein compared very closely to the results of this independent study. With minor exceptions, the FHWA report is considered inclusive

Figure 92: Retaining walls allowed construction of the Road through alpine terrain

and accurate. The minor exceptions include areas where deterioration has progressed in and around the retaining walls since the last FHWA evaluation. The additional costs associated with these exceptions are included in the cost estimate for the overall rehabilitation.

In order to retain the serviceability and integrity of the Road until the overall rehabilitation commences, it is recommended that the FHWA-established work on retaining walls continue as scheduled until a Record of Decision from the EIS and final design are implemented.

FHWA has identified approximately 132 stone masonry retaining walls on the Road. As indicated in the Conditions Assessment, many of these walls are in need of repointing and other work such as repair of foundation supports, contingent guardwalls, and drainage facilities. Five of these walls are known to require major reconstruction or rehabilitation work as identified in the Conditions Assessment. Of the total, 41 were shown to be on known avalanche chutes. Three (MP 26.89, MP 26.97, and MP 27.09) were identified as having recent avalanche damage and subsequent repairs. Others may also require major reconstruction pending further analysis.

The continued use of the rehabilitation methods developed by FHWA and the park for retaining walls is recommended, and includes the following three principal techniques:

- Rebuild the roadbase by removing all unsuitable roadbase material, and replace it with suitable material in layers separated by geotextile fabrics, thereby mechanically stabilizing the earth (MSE) and reducing or eliminating the load on the wall. This method is cost effective, relatively simple, and has the ability to generally maintain the integrity of the wall during repair. The downsides to this method are that it will most likely require two-way stops and more hauling traffic on the roadway, and there are safety issues associated with large, open excavations.

- Construct a concrete slab across all or part of the roadway that is anchored with micropiles, thereby taking the load off the wall (Figure 93). This method is faster than rebuilding the roadbase, can be accomplished with alternating one-ways, and maintains the overall integrity of the wall during repair. This method, however, is a newer technology, more expensive, and requires specialty contractors to perform the work.

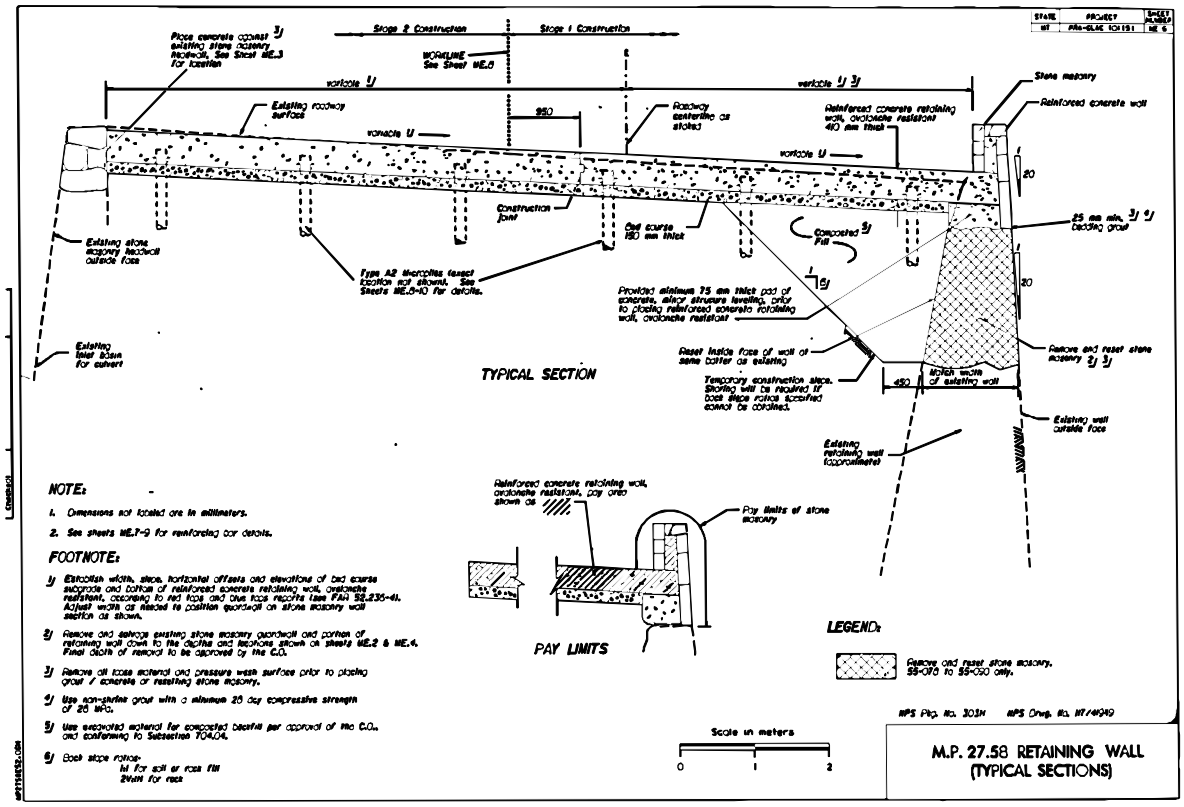

Figure 93: The FHWA design for retaining wall repair uses a concrete slab anchored with micropiles

- Stabilize backfill in place by high pressure injection of high-strength grout directly through the face of the rock wall and/or through the pavement and base courses into the underlying foundation (Figure 94). Either cementatious or polyurethane grout can be used; however, polyurethane is considered better for this application as it is not soluble in water and is therefore more effective in saturated soils. This technique can be used for locations where evidence of wall tilting is not present. This is the quickest method of repair, can be accomplished using alternating one-

ways, and does the best job of maintaining the integrity of the wall during the repair. Both cementatious and polyurethane grout injection require speciality contractors, especially for polyurethane injection. The life cycle of this method is shorter than the other methods discussed, as it does not take the load off the wall.

In all cases, retaining walls should be restored to their original historic condition insofar as practical. In general, this rehabilitation should be completed prior to any work on a roadway segment.

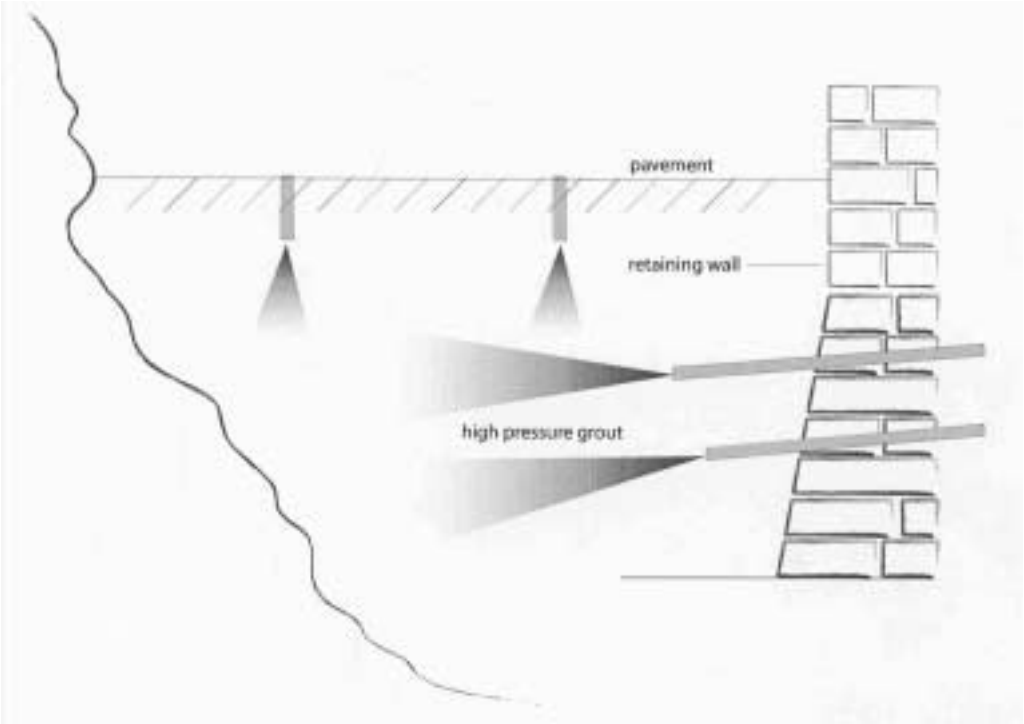

Figure 94: Repairing a retaining wall by injecting grout to stabilize the road base

Specific repair options will vary considerably with respect to the location and degree of repair required for each wall. The design for each wall should be site-specific with respect to location, geometric configuration, safety, and historic and cultural values. It is recommended that the park continue using the methods developed by FHWA, including rebuilding the roadbase with MSE, concrete slabs anchored with micropiles, and grout injection techniques as successfully implemented by FHWA.

In addition to the techniques developed by the FHWA and the park, alternative construction procedures for retaining wall rehabilitation may be considered in certain locations, for walls not designated as emergency repairs by the FHWA and the park. These include the following modifications to the FHWA methods, as well as new alternatives for consideration.

- Construct a concrete slab across all or part of the roadway that is anchored with micropiles as in the FHWA design, adding tieback anchors to tie the slab back into the slope to reduce or eliminate lateral movement. This would add further integrity to the walls and roadway by tying it to bedrock, and is particularly effective in avalanche chutes and areas that receive impact loads from water and rock fall.

- Stabilize backfill in place by high pressure injection of high strength polyurethane grout (not cementatious) directly through the face of the rock wall and/or through the pavement and base courses into the underlying foundation, with the intent of stabilizing the structure and providing a barrier to prevent further water intrusion.

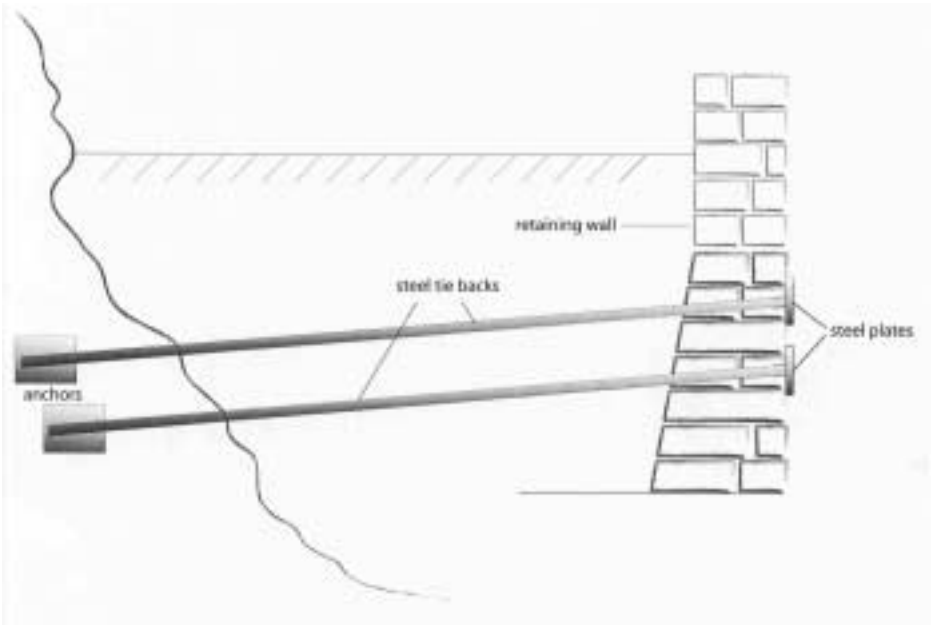

Figure 95: Installation of rock anchor tiebacks

- Install rock anchor tiebacks (steel dowels or cable anchors) through the wall face and into the solid rock backslope as shown in (Figure 95). For this application to work well, the wall must be of sound integrity, as anchor points on the stone face

are minimal compared to the area of the wall. This alternative could provide a cost- effective short-term solution.

- As described in the drainage section earlier, install surface drainage intercept ditches and cross-drains, as well as subsurface curtain drains and underdrains on the uphill side of the roadway to mitigate drainage influence. Most of this method will require alternating one-ways for repair.

- Rebuild the foundation of the retaining wall in place by first providing temporary lateral support on the wall; then partially remove the ground underneath the wall, and form and pour a concrete footing in place. As most of the work is off the road-way in this alternative, minimal traffic control will be needed and alternating one-ways will be sufficient.

- In cases where the retaining wall and its foundation have deteriorated beyond repair, rebuilding the wall on micropiling and a footing is recommended to provide a long life cycle. Surface drainage intercept ditches and underdrains should be included (Figure 96). This is the most intrusive, costly, and time-consuming repair method, and could require two-way stops for traffic control.

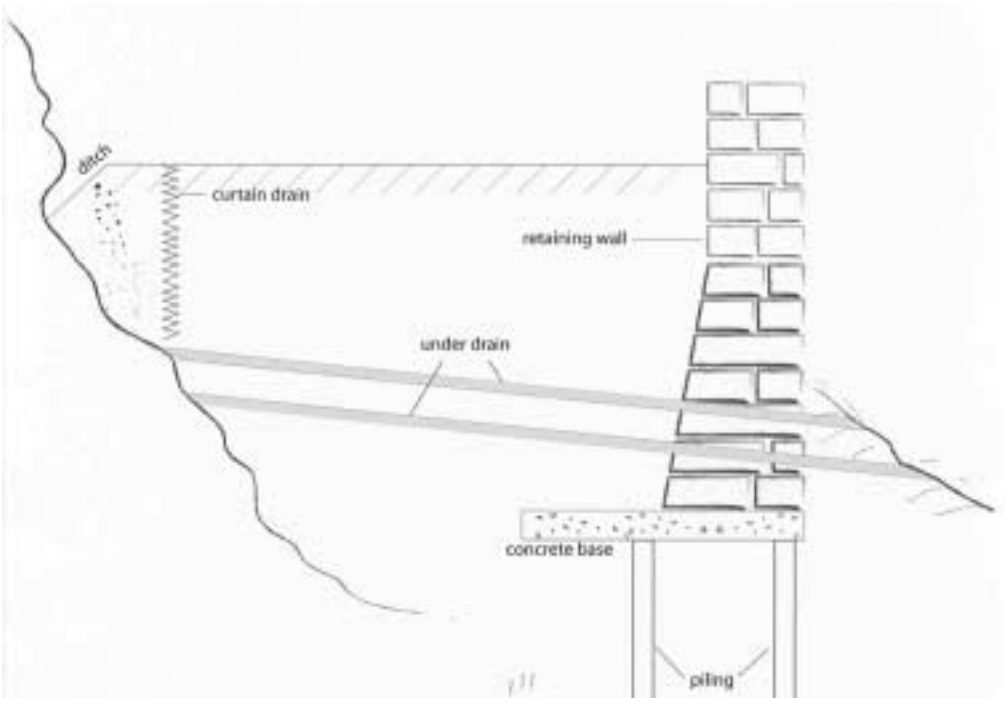

Figure 96: Total reconstruction of retaining wall

- For a large percentage of retaining wall repairs, only the top portion (three to eight feet) of many wall sections requires rehabilitation. Construction options are similar to guardwall rehabilitation discussed in the next section. For these areas, a moment slab on the roadway would tie the retaining wall to the roadway and stable ground. A guardwall would be placed on the moment slab to perform as its footing.

Several reinforced concrete retaining walls were observed which were partially finished with stone veneer. In the past, the use of veneer has been an accepted practice within the park when other, more historically appropriate methods were deemed impractical. This approach was acceptable to the Montana SHPO. In general, the stone veneer was of somewhat differing consistency and visual appearance from the original stone masonry work. The structural sufficiency of the concrete core of these walls appears sound. These walls are not historically appropriate; however, it is not prudent to remove them. Two feasible alternatives remain:

- Finish the remaining rock veneer work in the same fashion as it was started; or

- Remove the existing veneer, add a footing extension to the retaining wall where practical, and face the concrete wall in a historically appropriate pattern. Challenges will include access to the work and the constructibility of the footing extension.

Major rehabilitation activities on retaining walls will require alternating one-ways in most locations, with some two-way stops. Specialized equipment may also be required in order to complete these activities in a timely and practical manner. Skilled craftsmen should be employed to complete all rehabilitation work. Due to the precarious location of many of the walls, special care should be taken to provide for the safety of workers. Mobile working platforms, such as bridge deck stripping buggies, should be utilized to accommodate each individual site in a safe and practical manner.

The selection of method for the proper rehabilitation of retaining walls is wholly a function of specific site conditions. Designs must be matched with conditions. and there is little room for alternative selection, other than in the engineering specifics. FHWA has done an excellent job in selecting appropriate repair procedures for retaining walls.

APPENDIX F – CRITICAL RETAINING WALLS

cross drains are evident throughout this section. Drainage flow is arrested or interrupted, causing water to accumulate and seep across and into the roadbed, or find alternate drainage routes. The roadway subgrade is saturated and weakened by water intrusion, contributing to slump failures and fill slope distress. Stone guardwalls and retaining walls have shifted and weakened or failed in certain instances. Running or standing water on pavement surfaces creates further safety hazards to the highway user. Clean out, repair, and improvement of plugged and damaged drainage facilities should be undertaken as soon as possible to slow the overall deterioration of the Road. Erosion of slopes below the Road is occurring from drainage from culverts and erosion protection is required in several locations. Localized drainage studies should be conducted to determine the most appropriate drainage investments for long term stability of the Road and its structures.

Slope Stability: Much of this section has rock cuts above the road and fill slopes below, all created during the initial road construction. Several areas within the section require scaling of rock cuts for safety and stabilizing raveling soil slopes. Scaling should proceed judiciously throughout this section and include on-site geotechnical personnel to direct scaling operations on going basis. Safety of the workers in the rehabilitation will require special attention and in a few areas, positive protection will need to be in place for the work on the roadway.

Retaining Walls: There are approximately 93 stone masonry retaining walls within this section beginning at MP 17.2 and extending to MP 33.0 with heights ranging from two to 34 feet, and lengths ranging from 23 to over 300 feet. The general condition of the retaining walls is considered fair to poor, with most estimated to be in fair condition considering their age and location. Practically all of the walls need mortar repointing and miscellaneous repair work. However, five of the walls have failed and will have to be reconstructed using plans developed by FHWA over the next two years. Failed walls are located as follows:

- MP 23.65
- MP 23.47
- MP 23.42
- MP 27.58
- MP 32.95-33.0

All are discussed below and in the detailed inventory and investigation by the FHWA, reported in the Glacier National Park Retaining Wall Management System. These walls must be rebuilt. This rebuilding can reuse the original stones to preserve the

APPENDIX G – DRAINAGE AND SLOPE STABILITY CONSIDERATIONS & ALTERNATIVES

mended traffic control methods using alternating one-ways, two-way stops, intermittent stops, and closures.

Drainage Considerations and Alternatives

Figure 79: A scupper in an historic wall provides drainage from the roadway

Drainage and hydraulic considerations are of paramount importance in construction and rehabilitation work on the Road, and should be addressed early in the rehabilitation to avoid further deterioration.

Improvement of the overall roadway drainage is strongly recommended, as inadequate drainage is the single greatest cause of the deterioration of the Road and its structures. Water flowing across the roadway seeps into retaining walls, guardwalls, and other structures, which in turn breaks up the integrity of the structure through freeze-thaw cycles, and causing unpredictable movement of the structures. Water intrusion under roadways tends to move the fines in the roadbase, creating voids in the base and subsidence of the roadway. Without a reduction of the energy of falling water along drainageways, inlets and headwalls are damaged by impact and abrasion. Erosion occurs when water falls onto unprotected slopes. Without an adequate number of properly sized inlets, and well-maintained inlets, culverts, and cross-drains, water is likely to back up and spill over structures, and again potentially reduce structure integrity. Therefore, all roadway design and construction activities must be sensitive to existing and potential moisture intrusion throughout the roadway cross-section.

Overall Roadway. Where water is allowed to flow freely across the roadway, drainage features should be added to minimize water intrusion into structures and roadway pavement. Pavement should be kept sealed from water entering the roadbase. Valley pans (Figure 80) should be added where appropriate to seal the interface between the roadway and retaining walls or guardwalls, and to direct flow to inlets or through scuppers in the walls. Cross-drains -- grate-covered trench drains askew to the roadway -- should be added where necessary to catch sheet flow and direct water across the roadway.

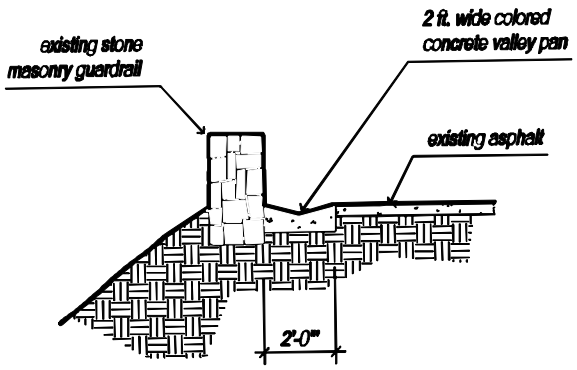

Figure 80: Installation of valley pan on guardwall face

In cases where the roadway has experienced subsidence due to water intrusion, two basic alternatives are available:

- Rebuild the roadbase by removing all unsuitable roadbase material, and replace it with suitable material in layers separated by geotextile fabrics.
- Using high pressure, inject a polyurethane grout into the material below the roadway to fill the voids and create a water barrier against future intrusion.

From a construction standpoint, rebuilding the roadbase is the less expensive alternative than the polyurethane injection method. Rebuilding the roadbase, however, will require traffic control using alternating one-ways, intermittent stops, and some two-way stops. Polyurethane injection would likely not require any two-way stops and therefore would have less impact on the visitor. Rebuilding the roadbase is also a task that most contractors can perform without extensive knowledge and special equipment, whereas polyurethane injection would require specially trained workers and special equipment. For the purposes of this study, rebuilding the roadbase is carried through the cost estimating and scheduling. During the design phase, alterna-

tives should be considered at specific sites. If rebuilding the roadbase to rehabilitate the roadway is chosen, it is recommended that these operations be scheduled in September or October to have a minimum impact on visitors.

Culverts. Determining the proper number and size of culverts is a function of local hydrology, and site-specific hydrologic study should be undertaken during the design phase. Where inadequate flow capacity exists, the alternatives include:

- Removal of existing culverts and replacement with properly sized culverts. In cases where the inlet or outlet of the culvert is in a historic wall, attention must be given to the size of outlet with respect to historic significance.
- Installation of additional culverts near existing undersized culvert, with an effort made to avoid impacts to historic features.

In most cases, structures that cross the roadway will require alternating one-way traffic control for the duration of construction and/or installation (usually one to two days for a typical 36" CMP about 30 to 40 feet long, if proper equipment, materials, and personnel are readily available). Two-way stops may be needed in areas where the width of the roadway does not allow both a continuous travel lane and enough area for the work. It is recommended that these structures be designed considering ease of maintenance as well as practicality and hydraulic properties. To minimize traffic disruption, the contractor could use multiple crews and install a number of culverts through a traffic control zone. Also, steel plates or grates could be temporarily installed over open culvert trenches to expedite movement of traffic.

Installation of culvert linings may be considered as an alternative to replacing existing culverts with new structures. This option would allow for rehabilitation under controlled traffic. A corroded culvert pipe can be returned to nearly new flow characteristics without replacing the original pipe and with a minimal adverse effect on traffic flow. The cost of this procedure is usually about half the cost of a new culvert installation; however, its life span is not proven and would not be that of a replacement culvert.

Installing additional culverts would be a more expensive solution, especially with added wall outlet work. It would also require some additional time, depending on the installation detail. The rehabilitation cost estimates include replacement and new culvert installations for best serviceability and life cycle.

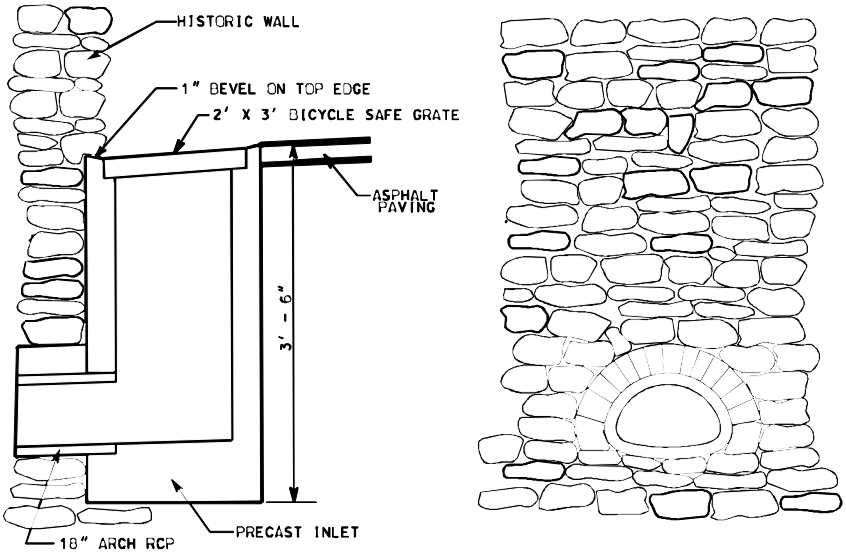

Figure 81: Installation of a drainage inlet on the roadway next to a stone masonry wall

Figure 82: Catch basins require some type of barrier to protect errant vehicles

Inlets, Catch Basins, and Trash Grates. Cleaning of inlets, catch basins, and trash guards should be a regular maintenance practice to allow the free flow of water into culverts that carry flow underground. Replacement of inlets should be made during roadway template rehabilitation. Inlet protection should include trash grates in areas off the Road to prevent accumulation and plugging of debris inside the culverts. Where inlets are located on

the traveled roadway, cover grates should also be rated for bicycle traffic, and outlets should be constructed in concert with the historic nature of the wall (Figure 81). Historic catch basins in most places along the Road require some sort of protection for errant vehicles. They may be either the log barriers currently used (Figure 82), or removable barriers at the catch basin perimeter.

This work should be scheduled with other work within a specific area for integrated traffic control operation. Otherwise, most of this type of work can be accomplished with alternating one-ways.

Drainageways. On steep slopes, current drainageways are often plated with rock that creates a pleasing look, especially above the Road. This allows free flow of water and debris down the drainageway. With a smooth rock surface, very little debris hangs up in the drainageway and erosion is minimized along the water's path. A trash guard usually blocks debris from entering culverts; these guards require periodic maintenance.

The problem with drainageways lined with a smooth rock surface is that water and debris impact and abrade the historic headwalls and bottom slabs of concrete box culverts. One alternative to this is to secure larger rocks in a pattern along the drainage way to dissipate some of the energy from the falling water and debris and reduce the resulting abrasion on the headwalls. Some debris may hang up on the secured rocks and may require periodic maintenance; however, the reduction of abrasion and impact on the headwalls will help ensure their long-term integrity.

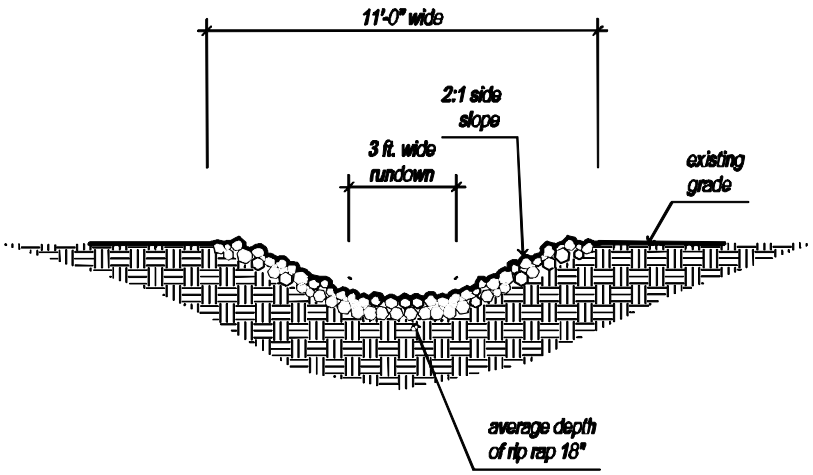

Figure 83: Installation of grouted rip-rap drainage rundown

To a lesser degree, in areas where water falls onto unprotected slopes and erosion is occurring, a grouted rip-rap drainage rundown can be constructed as shown in Figure 83.

Headwalls. The rehabilitation of headwalls requires the same basic rehabilitation

Figure 84: A guardwall in need of rehabilitation near MP 24.6

Slope Stability Considerations and Alternatives

Of the approximately 50 miles of Road, approximately fifteen miles have geotechnical concerns, most of which are concentrated in the Alpine Section. The geotechnical concerns fall into six general categories:

- Rockfall
- Unstable soil slopes above the Road
- Sloughing and erosion of slopes undercutting the Road or retaining walls
- Slump failures encroaching on the Road
- Debris flows onto and across the Road
- Avalanche areas and chutes

Figure 85: Rockfall area west of Logan Pass

Rockfall problems usually start at the edge of the pavement, as there is no shoulder or catch ditch in most locations. Rock faces are very steep and occasionally overhang the Road; they can range up to mountain-scale heights as shown in Figure 85. Hazards include loose rock detaching from the cut or cliff above the road, and boulders or loose rocks tumbling onto the Road from natural slopes above rock cuts. Potential mitigation measures include scaling of loose material, rock bolting, mesh, shotcrete, rockfall fences, rockfall sheds, and signing. Some controlled blasting may be required and extensive scheduling of shots must be carefully planned. Each of these mitigation measures can reduce some risk. The choice of mitigation must also consider historic significance, and for this reason, only rock scaling activities will require closure of two lanes for short periods of time. Rock scaling is not suitable for night-time work. Rock scaling can reduce rockfall hazard when applied to specifically identified locations of loose

material, but cannot eliminate all rockfall hazards on the Road. The quarter-mile section west of Logan Pass is regarded as a primary rockfall hazard area. However, it is not deemed practical or effective to undertake scaling or bolting on this area of roadway.

Soil slope instability occurs as raveling of poorly vegetated, steep cut slopes continues, releasing rocks and boulders as shown in Figure 86. In a few locations, soil falls over rock cuts or cliffs onto the Road. The hazards include rocks and boulders tumbling onto the road as they are released by erosion, or soil/mud flows. The risks to public safety are similar to rockfall events, but are less prevalent. There are soil slopes immediately above the Road for an estimated two miles or less of the Road. Most are found along the east slope of Siyeh Creek; there are other smaller, isolated locations elsewhere. The Siyeh Creek area can be mitigated by bio-remediation and realigning the roadway to provide an adequate catch area.

Figure 86: Weakened fill adjacent to the roadway

Bio-remediation may be a good alternative on several of the steep soil cuts. This includes the use of a specialized material consisting of wire mesh and “biomat” to encourage revegetation on the slopes, making them more stable. The biomat is designed to hold soil, seed, and moisture to facilitate revegetation. The wire mesh component of the material snares loose rocks and prevents uncontrolled tumbling onto the roadway.

Colluvial slopes that “creep” are usually stable during dry periods, but may be prone to movement during wetter periods. Over time, these slopes may deform enough to damage the road surface and tilt guardwalls. Deeper-seated slumps may behave similarly, but at a later date may undergo larger displacements that could result in closure of the Road until repairs can be made.

Figure 86: Steep colluvial slopes along the roadway

Where steep colluvial or fill slopes exist below the Road, erosion and sloughing of poorly vegetated slopes erode back, undercutting pavement as shown in Figure 87. This problem is most dramatic where road drainage outfalls are eroding the slope below the Road. This is primarily evident in the alpine section, where slopes are steep adjacent to the Road. The problems will continue to worsen unless action is taken. The hazards include deterioration of road shoulder and loss of pavement width, loss of structural support for the roadway, safety of motorists, and loss of historic walls.

Potential mitigation measures include retaining walls, reinforced earth, tiebacks or micropiles, cantilevering the Road, realigning the Road toward the uphill side, and preservation of existing slopes from further erosion by soil nailing and armoring. Without action, the Road will continue to deteriorate. As the problem becomes worse, the repairs become more expensive and time-consuming. Realignment or cantilevering of the roadway may be restricted due to conflicts with the Road's historic elements. Construction of a new road deck or slab, anchored with tiebacks or micropiles, may be a suitable solution in these areas.

The Big Drift area (Figure 88) and a section east of the East Tunnel (Figure 89) are the areas most urgently in need of correction of this type of damage. The pavement is being undermined in some locations, guardwalls have been toppled and lost by undermining, and the drop from the Road is precipitous.

In several instances, slump failures continue to damage the Road and require periodic patching. The damage often affects both lanes, and some instances involve historic walls. The hazards include damage to the pavement and possible loss of structural support for the Road, possible road closures, and loss of historic walls.

Figure 88: The Big Drift area

Slump failures are generally limited to approach sections where colluvial or fill deposits underlie the Road, and in short roadway sections at widely scattered locations. Potential mitigation measures include the construction of reinforced earth, tieback anchors, and subsurface drainage. Reinforced earth would be highly effective; however, it usually means that all or part of the stone masonry wall must be rebuilt. Adding subsurface drainage is non-intrusive to the historic character, however it may not be applicable or effective at all locations. Further geotechnical investigation is needed at these locations prior to design so that most the appropriate remedy can be selected.

Figure 89: The area east of the East Tunnel

More widespread is the phenomenon of slope "creep" which occurs in colluvial deposits. Damage from slope creep is generally confined to the outboard lane, and in most cases is "remedied" by periodic repaving. More severe cases can be mitigated by construction of a structural road deck or slab and footer on the edge of the outboard lane.

Debris, mostly bed load rock material, flows onto and over the roadway during high runoff events and avalanches as shown in Figure 90. Debris flows are generally confined to avalanche chutes and drainageways. However, there is a hazard of sudden flow onto the Road, sometimes of considerable volume. The risks in such cases include loss of guardwalls and other structures, road closures, and possible engulfment of vehicles and/or visitors who may be present during high runoff events. The extent of the problem is limited to approximately twenty easily-identified locations of drainageways and gully crossings. Potential mitigation measures include the installation of improved drainage crossings, debris barriers, signing, and road closure during high runoff events. While signing and road closures during high runoff events would reduce safety risk, they would do nothing to solve the problem. Debris barriers placed in gullies and drainageways will help solve the problem; however, they may be visually intrusive from the Road and would require periodic maintenance.

Figure 90: Debris flows onto and over the Road in this area

Avalanches are pervasive throughout the park (Figure 91). Their primary impact is damage to retaining walls and guardwalls. As their probability is very low during the

peak visitor season, they are not addressed as a public safety issue for the Road. However, a hazard exists for park maintenance personnel during snow removal operations and maintenance activities in the spring. Existing procedures during these operations include personnel watching for conditions that may signify an event. The park should maintain these procedures and consider other means for early detection of avalanches. Avalanche-resistant sections of roadway and guardwall can be constructed in some locations. The use of seasonally removable guardrail, recently approved by FHWA, may be more practical in the more active areas such as Haystack Creek in the Alpine section.

Figure 91: Avalanche chutes scar the face of the mountain

APPENDIX H – TABLE 1: TOP 20 MITIGATION RECOMMENDATIONS

Even given the unstructured format, there was substantial concurrence on a number of remarks. The top 20 most frequent types of responses are highlighted below in descending order.

Table 1: Top 20 Mitigation Recommendations
(in descending order of frequency)

Remark	%
1. Use the media. Remarks: send positive messages; never say closed; the Road is open	17%
2. Market other areas within the park.	13%
3. Work quickly. Remarks: "move quickly," "do it now," "work 24 hours a day," "close the Road and finish fast."	11%
4. Market other areas outside of the park.	9%
5. Leave a portion of the Road open during construction.	9%
6. Use construction activity as a visitor attraction. Remarks: set up a construction viewing station, offer videos and talks, sponsor construction tours.	8%
7. Close one side of the Road (up to Logan Pass) at a time.	7%
8. Improve public transit.	7%
9. Construct at night.	6%
10. Close one-half of the Road at a time.	5%
11. Construct in the spring and fall only.	5%
12. Make the Road improvements (no further detail provided).	4%
13. Improve North Fork Road.	4%
14. Allow transit only on Going-to-the-Sun Road.	3%
15. Provide financial aid to businesses.	3%
16. Provide accurate information.	2%
17. Preferential use of bicycles. Remarks: add a bike lane, one day a week for bikes only.	2%
18. Build / add other attractions within the park.	2%
19. Improve other roads through the park.	2%
20. Remove / reduce park entrance fees.	2%

The lodging respondents, who expect to be most heavily impacted, underscored use of the media. Thirty percent referenced the need for positive marketing and advertis-

APPENDIX I – TABLE 4: MOST FREQUENT "OTHER COMMENTS"

APPENDIX J – TABLE 6: PRIORITY VISITOR DEVELOPMENT ACTIONS

Table 6: Priority Visitor Development Actions

Type	Action
Backbone Facility Four types of improvements are proposed: public transportation (1), roads (2), an amphitheater (3) and historic hotel upgrades (4). These improvements will not only enhance the visitor experience during rehabilitation of the Road, but will have lasting benefits that extend for years to come.	1. Upgrade public transportation to and through Glacier National Park. 2. Improve roads adjacent to the park. 3. Upgrade and construct outdoor amphitheaters. 4. Upgrade & winterize historic hotels so they can accommodate visitors throughout the year. *(This is inconsistent with the Glacier National Park General Management Plan.)*
Event This action takes strategic advantage of the Lewis & Clark bicentennial events that will bring millions of additional visitors to Montana in 2005 and 2006.	5. Use Lewis & Clark bicentennial events to introduce visitors to activities other than travel on the Road.
Marketing Five marketing actions are proposed. Two actions (8, 9) would occur during reconstruction of the Road; three actions (6, 7, 10) help prepare for reconstruction and should being quickly. These actions call for two new staff positions: a communications director (10) and a public information manager (9).	6. Improve Internet hypertext linkages and websites regarding events, activities, festivals, cultural heritage and natural resources. 7. Change visitor prospect information to introduce sites other than the Road. 8. Develop information and add NPS staff to improve the experience of visitors who are stopped by the rehabilitation of the Road. 9. Activate a public information program to aid visitors and local businesses during rehabilitation of the Road. 10. Manage the media more effectively.
Visitor Service Two visitor service actions focus on NPS services at the visitor centers (12) and elsewhere within the Park (13). Action 11 aims to take advantage of the tremendous interest in Native American culture.	11. Improve awareness of events and expand opportunities to learn more about the local Native American Heritage. 12. Broaden services provided at NPS visitor centers at the East and West entrances. 13. Open more of Glacier National Park to visitors and market new venues.
Organization Two actions are proposed to improve local hospitality services (14) and the delivery of visitor services through better coordination among organizations (15).	14. Continue improving customer service through hospitality training. 15. Broaden and improve cooperation and communication among local organizations involved in visitor development.

APPENDIX K – GOING-TO-THE-SUN ROAD ADVISORY COMMITTEE DRAFT ADVICE

DRAFT

September 21, 2001

Memorandum

To: National Park Service

From: Going-to-the-Sun Road Advisory Committee

Subject: Draft Advice

The Going-to-the-Sun Advisory Committee met on September 19-21, 2001, at East Glacier Park Lodge, East Glacier, Montana.

The Going-to-the-Sun Advisory Committee charter states that, "The purpose of the Committee is to advise the National Park Service in the development of alternatives for rehabilitation of the Going-to-the-Sun Road in Glacier National Park, focusing on road condition and rehabilitation strategies, including scheduling, costs and measures to mitigate impacts on visitors and local economies. These alternatives will then be analyzed in an environmental document that will provide the basis for the agency decision."

After extensive and rich discussion and review of the engineering and socioeconomic studies, the Committee forwards the following modified alternatives to the National Park Service for their review and analysis.

The Committee intends no endorsement of any particular option. Based upon information gleaned through the Committee process and taking into consideration public comments, the Committee feels these alternatives need to move forward to provide a wide range of considerations to be fully analyzed by the National Park Service and the public in the environmental process. The Committee will meet in November to review public comments on their product from this meeting and finalize their comments to the National Park Service.

ELEMENTS COMMON TO ALL ALTERNATIVES

The Committee recommends that the following elements be included in every alternative:

- The ability to develop a construction package that does not exceed threshold visitor waiting periods.
- Predictable public experience.
- Public information/communication strategies and tools that are credible and consistent.
- Traffic management strategies that include flaggers that are skilled in communications.
- A maintenance and operation plan.
- Visitor development strategies including interpretive possibilities.
- Visitor support strategies and potential impacts on visitor experience.
- Examination of possible uses of one-way traffic.
- Examination of possible uses of shuttle systems.

- Cost and time factors.
- Safety considerations.
- Historic retention.
- Non-impairment of natural values.
- Potential social and economic impacts.
- Expanding cost estimates to include maintenance and operations; a structured communication plan; visitor development strategies and visitor support facilities (e.g., pullouts, parking, interpretive facilities, restrooms).
- Front-loading maintenance costs to prevent further deterioration.
- Utilizing current real time visitor use data and adjusting traffic management hours so that most delays are in the lowest traffic use period.

ALTERNATIVES

A. Priority Rehabilitation

- Include priority rehabilitation as a alternative in the environmental document because it provides some sense of baseline, is realistic based on current funding, and includes planning.
- Improve this alternative by:
  - Front-loading maintenance costs to prevent further deterioration.
  - Changing Friday afternoon to another midweek day.
- Be proactive on design and packaging to take advantage of funds as they become available.

B. Comprehensive Shared Use with Extended Construction Seasons where Critical

- Combine the Comprehensive Shared Use Alternative with the Extended Rehabilitation Seasons Alternative because their only difference lies in scheduling. Include it as a alternative in the environmental document.
- Improve this alternative by:
  - Making cost estimates more comprehensive.
  - Addressing seasonal opening and closing periods so that they more closely reflect actual visitor traffic patterns and current Going-to-the-Sun opening and closing dates.
  - Utilizing current, real-time visitor use data and adjusting traffic management hours so that most delays are in the lowest traffic/use period.
  - Adjusting segment closures to achieve optimum engineering efficiencies (i.e., continuous days of closure versus scattered days).
  - Adjusting segment closures to mitigate impacts on visitors and the local economy.
  - Adjusting the 3% escalation factor and explain rationale.
  - Maximizing night work within safety constraints.
  - Explore the feasibility of utilizing shuttle systems.
  - Establishing a substitute word for “closure” and clearly define its meaning; be consistent in its use in all alternatives.
  - Clearly explain the floating four hour closure strategy and rationale. Clarify that it will occur between 7 p.m. and 7 a.m.

C. Accelerated Completion Through Isolated Road Segment Suspensions (Closures)

- Include the Accelerated Completion Through Isolated Road Segment Suspension approach as an alternative in the environmental document. It may be appealing to funders and could result in a shorter time period for project completion.
- Improve this alternative by:
    - Better defining and clarifying "segment closure."
    - Assure continued access to Logan Pass on at least one side.
    - Explain the amount of available road access at any point in time.
    - Design closure strategies to optimize construction efficiencies.
    - Explore opportunities to travel to the closed section from the open side, if the closed side is not fully closed.
    - Explain the potential impacts of maximum closure.
- Explore the costs and benefits of closing one side at a time.
- Explore the costs and benefits of when a segment closure occurs on one side of the Logan Pass traffic management and rehabilitation on the other side of the pass.

D. Repair as Needed

A Repair as Needed alternative was examined and dismissed by the Committee because it did not adequately address the needs of the Road and because it is less than what the National Park Service is doing now.

E. No Action Alternative

The Committee assumes that Glacier Park personnel are in the best position to describe the No Action alternative required in the Environmental Impact Statement.

PROPOSED ACTIONS

A. DRAINAGE

- The Committee accepts the rankings related to drainage in the table on page 38 in the Engineering Study.

Additional Advice Related to Drainage

- Recognize that drainage is the foundation of road permanency. As drainage goes so goes the road.
- Recognize that core sampling is an essential next step to confirm rankings.

Advice Related to Operation & Maintenance

- Build drainage systems to what is appropriate for the specific site and design maintenance strategies to highest possible standards (rather than stop at "prudent").

B. GUARDWALLS

- The Committee accepts the rankings related to guardwalls in the table on page 38 in the Engineering Study. We believe that the alpine section includes walls where walls are most needed and most deteriorated. We also affirm that the least severe problem area is at St. Mary which is ranked lowest priority.

Additional Advice Related to Guardwalls

- Repair existing historical walls with compatible stone.
- Collect and salvage stone along the road and stone that has fallen off the road.
- Use rock retrieved from scaling
- Explore opportunities to obtain building materials from the Blackfeet and Flathead Nation's.
- In areas where the historic wall is gone, restore to the appearance of what was there historically using modern technologies.
- Bring road surface down to restore 18" to historic wall rather than building up the wall where possible.

Advice Related to Operations & Maintenance

- Provide regular, continual maintenance to assure public safety and resource protection.
- Write and implement a manual of maintenance procedure's, especially snow plowing, which includes seasonal and annual inspection and evaluation maintenance-related facility impacts.
- Provide training opportunities for Tribal members and others as stone masons.

C. ROAD PAVEMENT

- The Committee accepts the rankings related to road pavement in the table on page 38 in the Engineering Study.

Additional Advice Related to Road Pavement

- Restore a more suitable pavement width to accommodate oversize vehicles in those areas that are not subject to vehicle size restrictions.
- Clearly distinguish priority designations between segments 4 & 5 and if that distinction is not clear, then attribute equal priority to both segments (e.g., ranking of 4 for both).

Advice Related to Operations & Maintenance

- Include and incorporate the cultural landscape report information relating to historic maintenance practice in the Engineering Study.
- Develop an improved Operations & Maintenance Plan and develop strategies that ensure future maintenance and operations funds to be spent specifically for "on the ground" road maintenance and not overhead**. Provide training opportunities for Tribal members or others.**

D. SLOPE STABILITY

- The Committee accepts the rankings related to slope stability in the table on page 38 in the Engineering Study.

Additional Advice Related to Slope Stability

- Complete the most critical elements first.
- Recognize safety as a major concern (i.e., overhead scaling).
- Increase capital costs when justified by reducing failure maintenance costs.
- Don't concentrate on the alpine section at the exclusion of other road segments. (The Committee recognizes that the alpine section will be the most expensive to fix.)
- Consider all items in balance (i.e., Slope stability cannot be addressed without discussing drainage etc.).
- The Committee does not think that "native" rock collection and additional pull-off creation is a sufficient reason to remove rock overhangs which contribute to the historical and aesthetic experience of the road.

E. RETAINING WALLS, ARCHES AND TUNNELS

The Committee accepts the rankings related to retaining walls, arches and tunnels in the table on page 38 in the Engineering Study.

Additional Advice Related to retaining walls, arches, and tunnels

- Rehabilitate retaining walls, arches and tunnels per recommendations on pages 90-96 of Engineering Study.
- Address the 5 priority walls immediately as defined in the Condition Assessment in the Engineering Study.
- Complete retaining walls, arches, and tunnels before other roadwork (i.e., paving, etc.).
- Restore historic character as practical (native materials).
- Rehabilitate drainage and slope stability as recommended in Engineering Study.
- Include 10-year maintenance program costs in overall project costs.
- Establish a permanent "maintenance endowment fund" separate from Glacier National Park's budget that would be used exclusively for road maintenance. It is hoped that income from the fund would be used starting in year eleven.

VISITOR DEVELOPMENT STRATEGIES

A. Critical Social/Economic Challenges/Issues

- Wrong or negative marketing messaging or communications regarding the park and/or road.
- Inadequate visitor/public transportation systems.
- Lack of real-time and variety of information on the road events, activities in the park and/or surrounding communities.
- Reduced or flat visitation during and after construction.
- Potential loss of income for local business.

- Negative visitor perception of Glacier National Park being closed.
- Decrease in level of visitor experience and enjoyment.
- Not visitor friendly (i.e., unclear signs; lack of difficulty rating for trails).
- Potential economic effects on rest of Montana, the Inland West, and Southwest Alberta, Canada.
- Potential reduced visitation resulting in loss income, loss of employment, and loss of opportunities for NPS to educate visitors.
- Image Problems including stewardship image tarnished by perceptions related to short long, and post term road construction.

B. <u>Additional Visitor Development Ideas</u>

- In order to absorb and mitigate impacts from Road rehabilitation. Implement a sustained campaign to increase new visitation from "front country" opportunities that are congruent with interpretive and recreational goals of Glacier National Park and further the General Management Plan. Timeline – A.S.A.P.
- Develop a "See America First" concept in marketing and partner with Amtrak.
- Use a national spokesperson in marketing efforts (e.g., Stephen Ambrose).
- Build on opportunities that renewed commitment to Going-to-the-Sun Road presents ((e.g., stone masons and other skilled trade training in local schools).
- During and after rehabilitation, develop/encourage local suppliers.
- Articulate through marketing and product development that there is more to Glacier than the Road (i.e., loop routes, visitor centers, other areas, hospitality training etc.).
- Add Glacier's 2010 Centennial celebration to events in number 5.
- Support efforts underway by the Blackfeet Nation to create a scenic byway for Highway 49.
- Explore the creation of additional touring experiences (cultural, historical and natural value experience) (our value experiences connecting to along Highway 49, 89 17 and 2.
- Get final determination from the Federal Highway Administration as to their earlier announcement that rehabilitation on the Road would not be occurring during the Lewis and Clark Bicentennial.
- Increase participation and awareness of Waterton-Glacier International Peace Park heritage tourism strategy.

SPECIFIC VISITOR DEVELOPMENT STRATEGIES

1. <u>Upgrade Public Transportation to and through the Park</u>.

- Encourage/reduce red tape/revisit existing regulations regarding connections with operators outside the Park who wish to provide supplementary services.
- Develop a sound plan with lots of conversation facilitated by the National Park Service.
- Timeline – Start now and keep thinking.

2. <u>Local Transportation Coordination.</u>

- Recognizing local jurisdiction, facilitate and coordinate dialogue among Glacier National Park, the Montana Department of Transportation, and Tribal governments.
- Promote discussion between Glacier Action Involvement Now (GAIN) and Burlington Northern Environmental Stewardship Area (BNESA).

3. **Upgrade and Construct Outside Amphitheater.**

   - Build outside Park boundaries through private, non-profit, and Tribal efforts.
   - Unable to establish a timeline.

4. **Upgrade Historic Hotels.**

   - Upgrade hotels working in partnership with Glacier Park, Inc.; winterizing is outside the current direction of the General Management Plan.
   - Ongoing

5. **Use Lewis and Clark Bicentennial Events to Introduce Visitors Activities other than Travel on the Road**.

   - Take advantage of the Lewis and Clark Bicentennial planned for 2003–2006 and in Montana in 2005 and 2006 working through Lewis and Clark Bicentennial Commission, Glacier Country/Travel Montana.
   - Build up to Glacier's 2010 Bicentennial through Lewis and Clark activities.

6. **Improve Hyperlinks and Websites**.

   - Improve through private nonprofit, Tribal and tourism groups.
   - Within 18 months.

7. **Change Visitor Prospect Information to Introduce Sites other than the Road**.

   - Provide visitor orientation away from the Road, focusing on other areas of the Park within the direction of the Glacier's General Management Plan.
   - Collaboration with Travel Montana and Glacier Country and other tourism entities.
   - Market Glacier proactively (i.e., Heritage Tourism initiatives)
   - Start now/ongoing

8. **Develop Information and Add National Park Service Staff to Improve Visitor the Experience Who are Stopped by Rehabilitation of the Road**.

   - Working though the Park develop a plan for improving the experience of visitors stopped by rehabilitation efforts (i.e., bear cookies, website, visitor center, information while stopped).

9. **Public Information Program**.

- Should be expanded and well planned through the National Park Service in cooperation with nonprofit, Tribal, and private entities.
- No near term timeline.

10. Work With and Inform the Media More Effectively.

- Provide the local, national and international media with good and accurate information.
- Start now.

11. Improve Awareness of Events and Expand Opportunities to Learn More about Native American Heritage.

- Improve awareness of heritage tours being conducted by the Blackfeet and Flathead Nations.

12. Visitor Center Facilities

- Endorse construction of West Side Visitor as called for in the General Management Plan
- Improve the East Side Visitor Center as called for in the GMP.
- No near term timeline.

13. Promote Glacier National Park Opportunities beyond Going-to-the-Sun Road.

- Refocus attention, interpretation and education on additional areas through National Park Service efforts within the direction of the General Management Plan.
- Start now

14. Continue Improving Customer Service through Hospitality Training.

- Encourage the funding of the state's super host program through Travel Montana and Glacier Country and other regional tourism organizations.
- Assure that the National Park Service Ambassador Program is used effectively in Glacier National Park.

15. Improve Cooperation among Economic Development Organizations.

- Glacier Country should lead the effort in cooperation with other economic development organizations.
- Within 18 months

/s/ Randall S. Ogle (Authenticated by Dayna Hudson 9/21/01)
Chairman

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Randall S. Ogle
Chairman

APPENDIX L – SUMMARY OF PUBLIC COMMENT

Summary of Public Comment at Advisory Committee Meeting

February 29 – March 2, 2000, Kalispell, Montana

The Chairman of the Blackfeet Tribal Business Council asked that the tribe be considered as a resource for employment and construction materials. They also suggested using areas of the Blackfeet reservation adjacent to the park for construction staging.

The Coalition for Canyon Preservation commented that any road reconstruction considered must preserve the historic integrity of the GTSR. The Montana Wilderness Association asked the committee to consider the impacts and needs of other roads in the area, not just the GTSR. They asked that the committee do everything it could to conserve and enhance the values of the North Fork drainage. They expressed particular concern about the proposed paving of the North Fork Road.

The Flathead Resource Organization wrote stating their concerns about future traffic volumes not only on the GTSR but also in the surrounding area. They urged the committee not to expand the traffic capacity of the GTSR and to address ways to limit cars. They also suggested that someone knowledgeable in alternative transportation design be added to the committee.

September 25-26, 2001, West Glacier, Montana

The committee was asked to address how the rehabilitation of the GTSR was going to impact the US 89 Highway Improvement Project underway. The Montana Wilderness Association stated their interest in minimizing the impacts on the economy, wildlife, other park resources and the American public. They also stated that with today's technology the road could be rehabilitated in two to four years while continuing to allow traffic on the road, even if only providing a shuttle service. They suggested consideration of a tour center and parking outside the park for a transportation system.

The Coalition for Canyon Preservation suggested that rehabilitation work on the GTSR could be accomplished under categorical exclusions, environmental assessments and an environmental impact statement. Dividing the work up this way would reduce the costs of the environmental compliance process. Furthermore they suggested not spending time and money on inappropriate and unreasonable alternatives. The work also needs to be accomplished while preserving the historic landmark status and the integrity of the road. They also expressed concern about creating a "boilerplate" EIS, which would be too general. They stated extending the construction seasons into spring and fall was not possible due to the weather.

Julie Altamus from Congressman Hill's office raised a concern about obtaining funding for the EIS from Congress before the committee is "sunset". Concerns were raised about construction funding and the need to repair the road while preserving the historic elements, and that top quality engineers and others are needed.

A member of the Blackfeet Tribe raised concerns about employment preferences in regards to road rehabilitation and that the EIS needs to address cultural concerns of the Blackfeet. Another

concern was raised by a member of the public regarding the condition of the North Fork Road and increased traffic that may use the North Fork Road while the GTSR is under construction. They requested that a complete traffic analysis be completed to minimize traffic on the North Fork Road. Another member of the public also spoke about the condition of the North Fork Road and additional impacts from increased visitor and NPS administrative use.

Another member of the public requested that the road be fixed as quickly as possible by closing ½ of the road at a time., so visitors do not have to wait in traffic. Another member of the public suggested encouraging public use of the inside north fork road to reduce traffic on the GTSR.
The North Fork Improvement Association requested that the committee conduct a traffic analysis and devise methods for minimizing traffic on the North Fork Road. They also requested that the National Park Service seek funding to maintain both roads in the North Fork drainage while the GTSR is under construction.

September 19-21, 2001, East Glacier, Montana

The director of the Burlington Northern Environmental Stewardship Area (BNESA) requested the committee consider developing a series of interpretive sites along the Middle Fork corridor that would provide education on wildlife, cultural heritage and history. This would provide an alternative to the GTSR experience for visitors, particularly during the rehabilitation effort.

A business owner wrote urging that the GTSR not be closed during the rehabilitation because of the economic impacts on tourists. She indicated that even closing the road for one season would take years for a business to recover. Another business owner wrote that if they had forewarning (at least 1 year ahead), they would be able to withstand a complete closure of the GTSR for one season. However they stressed the need for 24 hour-7 day week construction during this period to complete the rehabilitation. They also suggested that snow removal on the GTSR be contracted out, and should occur at night as well as during the day. And that the NPS should hire an avalanche forecaster to work on the GTSR.

November 15, 2001, Whitefish, Montana

A local resident urged the committee to recommend closing one half of the road and then the other, but always maintaining access to Logan Pass. He believes that the public will continue to visit the park if they are able to drive to Logan Pass. He felt that a shorter construction period will save "millions" in tax dollars and will have a minimal effect on the local economy. He asked that the committee evaluate their recommendation in a broader sense than the effect on local businesses. A business owner also stated that keeping the road open on one side or the other is the most important thing. They also raised concern about the public's perception that the park is closed and the need to start creative promotion with the public now that the park is open.

An employee of Grouse Mountain and Kandahar Resorts spoke saying that closing the road was not acceptable to tourism and urged the committee to be creative in coming up with alternative forms of transportation. She also suggested identifying alternative ways to see Glacier National Park during the construction period, but the road should always be kept open. Suggestions

were to use the train by running five shuttles per day from Whitefish to East Glacier, construct a bike path on the inside North Fork road, and use horses, as done in the past, as a way to get people into the park.

The Director of Glacier Park Incorporated stated that Alternative 3 provides the best opportunity to meet all the needs. Glacier Park Incorporated stated their support for Alternative 3 (Comprehensive Shared Use). The President of the Kalispell Chamber of Commerce also stated their support for Alternative 3. He also urged the committee to provide some direction to the park and or consultants on how to proceed with a broad public relations effort and include the funding of the public relations effort in the construction funding for the Sun Road. He also recognized that there was a lot of public sentiment towards getting the work done as quickly as possible and that the public relations effort was very important given that sentiment. Another member of the public who works in the travel and tourism industry also encouraged the committee to consider Alternative 3 and to think about creative ways to mitigate any inconveniences to travelers.

Summary of Public Comments on the Draft GTSR Studies

Below is a summary of public comments received on the draft GTSR studies prepared by Washington Infrastructure Services.

Protect the Historic Road and Natural Resources

Almost half of the commentors urged that the road be repaired and protected as a historic resource, and or that natural resources be protected and preserved. One noted the road and park as national treasures that needed to be protected. Comments encouraged that the road be fixed and restored and to protect park resources from traffic pollution.

Transportation

Half of the comments encouraged consideration of a shuttle system. Specific comments ranged from requesting a system that offered advanced reservations, longer hours, (running from ½ - 1-hour intervals), and which was affordable, efficient and attractive; to creating incentives for the public to use such a system. A few of these commentors made reference to the Yosemite and or Denali Transportation system and the quality service they provide. One commentor shared their bad experience with the system in Denali and recommended against such a system at Glacier.

Incentives from a number of commentors included banning cars completely or only during early and late season operation, or just allowing private vehicles on the road who are travelling to campgrounds, or charging each private vehicle a price that was higher than the cost of riding a shuttle. They suggested using the funds collected to subsidize the transportation system. One commentor suggested taking these actions while the road is being rehabilitated. One commentor felt that the transportation plan needed to be integrated throughout the park and not just focused on the Sun Road. They also felt that the Red Buses should be an integral part of transportation within Glacier. One commentor thought a transportation system should be operated by the NPS. Another suggested that the red buses begin in Apgar. Another noted that the transportation system needed to be able to carry more than 250 people a day, but also urged that parking for shuttles are kept small. Another commentor expressed concern about there being too many people at the end of the day for the scheduled buses. One other commentor questioned how the design would incorporate the needs of alternative modes of transportation.

A few commentors urged consideration of an affordable regional transportation system linking the park with airports and towns surrounding the park and one urged promotion of Highway 2 and 49 as alternate driving routes. They also urged consideration of linking the transportation system and parking with the new visitor center on the west side. A few comments were received stating that vehicles just passing through the park should not be allowed on the road. One felt that the through traffic made the road hazardous to visitors, while another urged the committee to remember that visitors use the road to access the interior of the park, not just to drive across. One commentor also urged the park to use fuel-efficient transportation vehicles and low polluting fuels. Two commentors suggested constructing large parking lots on the east and west sides of the park. One commentor suggested constructing a tram during the rehabilitation effort, for use during this time, and then continuing to use it after the road is rehabilitated, thereby extending the time visitors can view the backcountry since it could be operated after the road closes each season.

One commentor felt that more communication with visitors and the general public was needed regarding transportation options and services available. They also felt that the 30-minute transportation alternative, described in the study, was too short to manage or run efficiently. They suggested staggering ½ hour then 1 hour. This commentor also felt that the NPS is trying to prohibit private automobiles from using the road and recommended against this, based on their experience in Alaska.

Rehabilitation

Almost 1/3 of the commentors wrote that the road should be fixed in the shortest amount of time possible. They urged closing one side of the road and then the other, while maintaining access to Logan Pass. One commentor wrote that they wanted the road maintained as is without the addition of larger parking spaces or any road widening, while another suggested building more parking spaces and widening the road for safety and or bicyclists. Another commentor was in favor of any plan that would keep use down and not promote further traffic or business. One commentor advised to not use the word "closure" when talking about the work on the Sun Road. They had had a similar experience and lost many visitors due to public perceptions.

One commentor suggested consideration of an alternative that created a one-way road. They felt that it would require to much cut and fill to make a safe two-way road through the park. They also noted that with a one way road vehicle length restrictions could be eliminated. One commentor suggested having construction crews working round the clock and pay overtime if needed. Two commentors suggested closing only opening the road from mid June to mid September, or just closing earlier in September. This would provide a longer time for construction crews to work with no traffic.

One commentor asked how the road design will provide for safe pedestrian travel and what percentage of the road budget would be allocated for this. One commentor felt that weepholes needed to be looked at on the road. They also felt that working longer night hours were not adequately considered. The study referred to working 4 hours a night. They felt longer hours could be worked at night, particularly later in the season. This commentor also questioned the identified maintenance staff in the study and were concerned that road personnel were not identified for pothole patching and other routine activities. They also felt that garbage pickup should be contracted out, rather than a job performed by skilled labor. This commentor also recommended against using slurry as a road sealer and thought that chip seal was a better material due to the amount of snowplowing activity this road receives.

One commentor supported fixing the road over the long term. They felt that most visitors don't mind waiting from ½-1 hour to drive the road and that visitors realize summer is the only time for construction. They suggested that volunteers could provide talks about the park at the delay points. One commentor suggested consideration of doing the rehabilitation during the Lewis and Clark bicentennial rather than avoiding it so as other parts of the state would benefit from increased tourism during this period.

One commentor thought that maintenance of the road, once it is fixed, was not discussed and felt that measures should be taken to avoid a repeat of this situation.

One commentor was concerned about past work on the Sun Road and feels that there should be tighter environmental constraints than were applied in the past. They also stated that helicopters should not be used to perform any of the rehabilitation due to the noise and disturbance to wildlife. They suggested that the road projects need to be planned and implemented in a way that will demonstrate sensitivity to the natural resources through which the road passes.

Bicycle Use

Almost 1/3 of the commentors expressed concerns about lack of accommodations for bicyclists. One asked for design criteria that will provide for safe travel for bicyclists, how much of the road budget would be dedicated to alternative modes of transportation such as bicyclists. Another stated that bicyclists should have equal if not greater access to the road than personal vehicles and suggesting widening the road by two feet from west entrance to the Loop and from the east entrance to Siyeh Bend, to allow bicycles to travel safely in two directions. One commentor suggested removing the road and replacing it with a trail for hikers and bikers to "preserve the natural pristine wilderness sanctuary and promote solitude." Another commented that by providing a better public transportation system, there would be less congestion for bicyclists.

Socioeconomic

A number of commentors felt that decisions about how to fix the road should not be based solely on economic interests. One commentor felt that fixing it in shortest amount of time possible would have less economic impact than the longer rehabilitation alternatives. Two commentors urged businesses to "bite the bullet." One commentor suggested operating some park facilities in the fall and spring and possibly in the winter, or conduct a feasibility study to evaluate this. Another commentor felt the some of the ideas in the study indicated the contractor had not read the GMP, as some of the ideas such as year round hotels were not consistent with decisions already reached. They also felt consideration should be given to providing a financial mitigation package that would include economic dislocation grants to businesses impacted by the rehabilitation. One commentor suggested that the purpose of the road needed to be established because it wasn't for "businesses on either side of the park".

One commentor disagreed with the recommendation made in the study to extend the Akamina Parkway into BC.

A comment letter was received from Burlington Northern Environmental Stewardship Area (BNESA) stating that the objectives and interests of BNESA were compatible with efforts to mitigate the impacts of road rehabilitation. They offered the following ideas to implement along Highway 2 over Marias Pass during the rehabilitation.

- Upgrade and construct outdoor amphitheaters and interpretive sites and displays and provide additional hiking opportunities, wildlife viewing sites and rest areas along Highway 2. These would focus on wildlife and habitat information, scenic points, history of human use and unique environmental dynamics of this corridor. Sites to consider for enhancement include Goat Lick, summit of Marias Pass, interpretive sites on the east side of

the divide that address the unique characteristics of the plains meeting the mountains,, the Blackfeet reservation and Indian history, the Essex area, the Nyack flats area.

- Work with the Blackfeet Tribe to improve awareness of events and expand opportunities to learn more about the local American Indian heritage.

- Broaden and improve cooperation and communication among local organizations involved in visitor development.

Money and Construction Costs

Two comments expressed concern about the amount of money that has been spent on these studies and the advisory committee, rather than spending it on fixing the road. They felt that valuable time had been lost, placing the road at further risk for failure. Another comment suggested that the government set up a special account to pay for maintenance of roads in national parks.

Range of Alternatives

A letter from the Montana Wilderness Association suggested that the studies did not contain a wide range of alternatives and that the studies were not well integrated with each other. They also suggested adding another alternative that considers how rehabilitation would occur if a catastrophic event closed the road.

Another commentor felt that the NPS was not presenting the full story and needed to do so and clarify the options available.

Another commentor wrote that the option of turning the road into an electrified mountain railway system had not been adequately explored or addressed in the Sun Road Studies. This individual appears to be funding their own study of this idea.

As stated earlier, two comments were received suggesting more pullouts and parking spaces along the road.

Other

One commentor urged that both chalets be operated as full service.

Another commentor felt that the problems with the Sun Road were not clearly explained and neither were the solutions. They suggested that the NPS take control, "bite the bullet" and come up with solutions that are best for the public. Another commentor felt that fiscal year should be coordinated with the correct year. This commentor also rejected the suggestion of hydroplanes on St. Mary Lake. Another commentor would like more time to comment on these studies in the future.

One commentor suggested removing the Logan Pass VC and or only providing restrooms and a few exhibits, but removing the book sales. They felt this would reduce congestion and the parking problem at Logan Pass.

Another commentor felt that all hotels, motels, restaurants and gas facilities should be removed from within the park. They felt that these services should be provided on private lands outside

the park and that the local business community would welcome the change. Another commentor encouraged alternatives that looked at integrating development opportunities outside the park boundary to provide more opportunities to private enterprise.

One comment urged that the park establish "no fly zones" for helicopters and that the park should provide a reasonable number of stock facilities and provide more parking at the trailheads. Another urged the NPS to ban air tours over the park.

One commentor was frustrated at not being able to get the studies at the Choteau Library and wished that an open meeting could have been held to discuss them. He expressed frustration that he had not been informed by mail of their availability and that he finally heard about them from a newspaper article.

Corrections/Errors

One commentor suggested that Chapter 2 be rechecked. The description of Flathead County and Glacier County, including the statistics appear to be reversed.

General Information

Thirty-one letters were received from the public. Nineteen of these were emails and twelve by regular mail. Twenty-one letters were from Montana. One each was received from Washington, California, Wisconsin, and Minnesota. Six were from unknown locations. Two letters were received from special interest groups.

Summary of Public Comments on GTSR Advisory Committee Advice Document, dated September 21, 2001

Sixteen comments were received during the 30-day comment period. Three were from businesses in the state, two from organizations that represent businesses, one from an elected official and 7 from individuals. Note: One business sent three identical letters, but each signed by a different individual. This was counted as one letter.

In general most of the letters expressed concerns about the degree of impact on businesses in the state and urged that the road not be closed. They voiced support for alternatives that balanced repairs and continued visitor use and access of the Going-to-the-Sun Road. A few commentors urged that the road be repaired as quickly as possible.

- Six letters indicated that the repairs should be done in a manner that will continue to accommodate tourists. They stated concerns about the number of businesses that would close if the road were closed for repair.
- Two letters indicated that construction should occur during the night to limit socioeconomic impacts.
- Two letters stated their support for Alternative B stating that it would have less impact on the public. One of the letters suggested a modification of "B"; which was to close the road from 6pm-8am each day it was open and perform repairs during this time and to close the road a couple of weeks early in September.
- One letter urged not closing the road for more than 30 minutes during the peak months (June, July, August).
- Two letters urged that the road be repaired on the fastest schedule possible and one letter suggested that the Committee ask for money from Congress to subsidize businesses that would be affected due to road closure.
- Another suggested an improved shuttle service to cut down on the number of cars.
- Another letter suggested closing one side of the road and then the other and that this would result in the least cost.
- One letter requested that the road not be closed during the month of September, and to minimize delays during peak hours.
- One business felt that they could survive a road closure from mid September to June 15th, if they had a year to prepare. They also suggested 24-hour construction activity during the time that the road was closed. They also suggested that the spring opening should be contracted out to provide financial incentive to get the road open as soon as possible and to provide snow removal throughout the day and night. And they suggested hiring a professional avalanche forecaster.
- Three letters stated that Alternative C in MK Centennial's report provided the necessary balance between a quality visitor experience and adverse impacts on businesses. One of these letters stated that the viability of their business was closely linked to whether the road was open or not.
- One letter stated that Alternative A and C were not acceptable. Alternative A would take too long and Alternative C would cause businesses to close.

- One individual felt that some realignment should be considered as well as snow/rock sheds.
- Another letter urged the park service to get involved in land use issues in the North Fork.